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UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 6

IN THE MATTER OF:

Delta Shipyard Superfund Site

Chromalloy American, LLC and
Dean Services West, L.L.C,

Respondents

Proceeding under Section 106(a)
of the Comprehensive Environmental
Response, Compensation, and Liability
Act, 42 U.S.C. § 9606(a).

CERCLA Docket No. 06-01-18

**UNILATERAL ADMINISTRATIVE
ORDER FOR REMEDIAL
INVESTIGATION/FEASIBILITY
STUDY**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY UNILATERAL
ADMINISTRATIVE ORDER FOR
REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

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I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Order ("Order") is issued under the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9606(a). This authority was delegated to the Administrator of the United States Environmental Protection Agency (EPA) by Executive Order No. 12580, 52 Fed. Reg. 2923 (Jan. 23, 1987), and further delegated to the Regional Administrators by EPA Delegation Nos. 14-14-A and 14-14-B. This authority was further redelegated by the Regional Administrator of EPA Region 6 to the Director of the Superfund Division by EPA Region 6 Delegation No. R6-14-14B (Administrative Actions through Unilateral Orders).

2. This Order pertains to property located generally at 200 Industrial Boulevard and 200 Dean Court in the City of Houma, Terrebonne Parish, Louisiana (the "Delta Shipyard Superfund Site" or the "Site"). The Site is located approximately ½ mile on the east and west sides of Dean Court south of Industrial Boulevard. This Order requires Respondents to prepare and perform a remedial investigation/feasibility study (RI/FS) to: (a) determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site; and (b) identify and evaluate remedial alternatives to prevent, mitigate, or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, in order to abate an imminent and substantial endangerment to the public health or welfare or the environment that may be presented by the actual or threatened release of hazardous substances at or from the Site.

3. EPA has notified the State of Louisiana (the "State") of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

II. PARTIES BOUND

4. This Order applies to and is binding upon Respondents and their heirs, successors, and assigns. Any change in ownership or control of the Site or change in the corporate or partnership status of a Respondent, including, but not limited to, any transfer of assets or real or personal property, shall not alter Respondents' responsibilities under this Order.

5. Respondents are jointly and severally liable for implementing all activities required by this Order. Compliance or noncompliance by any Respondent with any provision of this Order shall not excuse or justify noncompliance by any other Respondent. No Respondent shall interfere in any way with performance of the Work in accordance with this Order by any other Respondent. In the event of the insolvency or other failure of any one or more Respondents to implement the requirements of this Order, the remaining Respondents shall complete all such requirements.

6. Respondents shall provide a copy of this Order to each contractor hired to perform the Work required by this Order and to each person representing any Respondent with respect to the Site or the Work, and shall condition all contracts entered into under this Order upon performance of the Work in conformity with the terms of this Order. Respondents or their

contractors shall provide written notice of the Order to all subcontractors hired to perform any portion of the Work required by this Order. Respondents shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work in accordance with the terms of this Order.

III. DEFINITIONS

7. Unless otherwise expressly provided in this Order, terms used in this Order that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Order or in appendices to or documents incorporated by reference into this Order, the following definitions shall apply:

"Affected Property" shall mean all real property at the Site and any other real property where EPA determines, at any time, that access, land, water, or other resource use restrictions are needed to implement the RI/FS, including, but not limited to, the following properties generally located at 200 Industrial Boulevard in the City of Houma, Terrebonne Parish, Louisiana.

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675.

"Day" or "day" shall mean a calendar day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or federal or State holiday, the period shall run until the close of business of the next working day.

"Effective Date" shall mean the effective date of this Order as provided in Section VIII.

"Engineering Controls" shall mean constructed containment barriers or systems that control one or more of the following: downward migration, infiltration, or seepage of surface runoff or rain; or natural leaching migration of contaminants through the subsurface over time. Examples include caps, engineered bottom barriers, immobilization processes, and vertical barriers.

"EPA" shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

"EPA Hazardous Substance Superfund" shall mean the Hazardous Substance Superfund established by the Internal Revenue Code, 26 U.S.C. § 9507.

"Institutional Controls" or "ICs" shall mean Proprietary Controls and state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices that: (a) limit land, water, or other resource use to minimize the potential for human exposure to Waste Material at or in connection with the Site; (b) limit land, water, or other resource use to implement, ensure non-interference with, or ensure the protectiveness of the response action pursuant to this Order; and/or (c) provide information intended to modify or guide human behavior at or in connection with the Site.

“Interest” shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year. Rates are available online at <https://www.epa.gov/superfund/superfund-interest-rates>.

“LDEQ” shall mean the Louisiana Department of Environmental Quality” and any successor departments or agencies of the State.

“National Contingency Plan” or “NCP” shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

“Order” shall mean this Unilateral Administrative Order, all appendices attached hereto. In the event of conflict between this Order and any appendix, this Order shall control.

“Owner Respondent” shall mean any Respondent that owns or controls any Affected Property, including Dean Services West, LLC. The clause “Owner Respondent’s Affected Property” means Affected Property owned or controlled by Owner Respondent.

“Paragraph” shall mean a portion of this Order identified by an Arabic numeral or an upper or lower case letter.

“Parties” shall mean EPA and Respondents.

“Proprietary Controls” shall mean easements or covenants running with the land that (a) limit land, water, or other resource use and/or provide access rights and (b) are created pursuant to common law or statutory law by an instrument that is recorded in the appropriate land records office.

“RCRA” shall mean the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992 (also known as the Resource Conservation and Recovery Act).

“Respondents” shall mean Chromalloy American, LLC, and Dean Services West, LLC.

“Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in monitoring and supervising Respondents’ performance of the Work to determine whether such performance is consistent with the requirements of this Order, including costs incurred in reviewing any deliverable submitted pursuant to this Order, as well as costs incurred in overseeing implementation of this Order, including, but not limited to, payroll costs, contractor costs, travel costs, and laboratory costs.

“Section” shall mean a portion of this Order identified by a Roman numeral.

"Site" shall mean the Delta Shipyard Superfund Site, encompassing approximately but not limited to three open pits and an adjacent drainage ditch, located generally at 200 Industrial Boulevard and 200 Dean Court in Houma, Terrebonne Parish, and depicted generally on the map attached as Appendix B. The Site is situated south of Industrial Boulevard approximately one-half mile on the east and west side of Dean Court.

"State" shall mean the State of Louisiana.

"Statement of Work" or "SOW" shall mean the document describing the activities Respondents must perform to develop the RI/FS for the Site, as set forth in Appendix B to this Order. The Statement of Work is incorporated into this Order and is an enforceable part of this Order as are any modifications made thereto in accordance with this Order.

"Transfer" shall mean to sell, assign, convey, lease, mortgage, or grant a security interest in, or where used as a noun, a sale, assignment, conveyance, or other disposition of any interest by operation of law or otherwise.

"United States" shall mean the United States of America and each department, agency, and instrumentality of the United States, including EPA.

"Waste Material" shall mean: (a) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (b) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (c) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

"Work" shall mean all activities and obligations Respondents are required to perform under this Order, except those required by Section XVI (Record Retention).

IV. FINDINGS OF FACT

8. The former Delta Shipyard Site is located generally at 200 Industrial Boulevard and more specifically at 200 Dean Court in southeastern Houma, Terrebonne Parish, Louisiana. A residential property is located just west of the Site. The Site is situated south of Industrial Boulevard approximately one-half mile on the east and west side of Dean Court. The Site is bordered to the north by Elevating Boats LLC, to the east by Company Canal waterway, to the south by an industrial crane company (F&M Marco, Inc.) and to the west by Bayou LaCarpe. The Company Canal flows south approximately 1,000 feet into Bayou LaCarpe which flows south approximately 4,000 feet into the Houma Navigation Canal.

9. Delta Shipyard was a cleaning and repair facility for small cargo boats, fishing boats, and oil barges. Oily waste from the cleaning process was stored in several unlined earthen pits used as evaporation ponds. These pits were reportedly also used to dispose of oil field drilling material. Delta Shipyard was owned by Delta Ironworks, Inc., from 1964-1972 before merging into Chromalloy American Corporation. The entire property consisted of 165 acres and was home to seven divisions of Delta Ironworks, including Delta Shipyard and Delta Mud. During the 1970s and 1980s, the property changed hands through several mergers and sales. The Site is currently owned by Dean Services West, LLC. In January 2012, the Louisiana Department of Environment Quality asked the EPA for assistance in evaluating the site.

10. Wetlands located on the Site are contaminated with including, but not limited to: arsenic, antimony, anthracene, barium, cadmium, ethylbenzene, fluorine, lead, manganese, mercury, 2-methylnaphthalene, phenanthrene, pyrene, o-xylene and m, p-xylene. In addition, three evaporation pits containing greater than 30,000 cubic yards of hazardous material are located in a wetland and may potentially release waste to nearby waterways.

11. Large volumes of waste remain on-site and hazardous substances have been found in groundwater, surface water and soil. The closest residential property is located approximately 400 feet west of the open pits. Without remediation of the Site, additional release to groundwater, surface water and soil will continue to occur.

12. The predominate threat to human populations, animals or food chain is the potential for exposure by direct contact with arsenic, antimony, anthracene, barium, benzene, cadmium, chromium, ethylbenzene, fluorine, lead, manganese, mercury, 2-methylnaphthalene, naphthalene, phenanthrene, pyrene, o-xylene to the surface water pathway, groundwater and soil.

13. The Delta Shipyard Superfund Site was listed on the National Priority List ("NPL") pursuant to CERCLA Section 105, 42 U.S.C. § 9605, on September 22, 2014, 79 Fed. Reg. 56515 (September 22, 2014).

14. Chromalloy American, LLC was the former owner of the Site at the time of disposal of hazardous substances. Delta Iron Works purchased the Site in 1964 and operated the Site as Delta Shipyard and/or Delta Mud. In 1972, Delta Iron Works merged into Chromalloy American Corporation. Chromalloy American Corporation sold the Site to Delta Services Incorporated on August 31, 1980. Chromalloy American Corporation merged into Chromalloy American LLC on December 23, 1986. Chromalloy American LLC is a limited liability company and a responsible party under Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2) as the former owner of the Site at the time of disposal of hazardous substances.

15. Dean Services West, L.L.C. is the current owner of the Site. An Act of Exchange occurred October 29, 2012 transferring ownership of the Site from Mr. Lynn Dean to Dean Service West, L.L.C. Dean Services West L.L.C. is a limited liability company and a responsible party under Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1) as the owner of a hazardous waste Site.

16. Multiple phases of investigations have occurred at the Delta Shipyard Site since the early 1980s. Several investigations that have been conducted in the vicinity of the open pits encompassing the current Site. In 1981, EPA contractors performed a preliminary assessment of the Site and found that contamination of surface water could occur if the pits overflowed, and they found some staining of soil from oily wastes in the pits. In 1983, the Louisiana Department of Natural Resources performed an inspection of the Site and subsequently issued a Notice of Violation. Eight violations were cited; among these violations were "that there was no indication that the facility was having their waste treated stored or disposed of at a permitted hazardous waste facility, and the facility has not developed an adhered to groundwater sampling and analysis plan".

17. In 1985, Wink Engineering collected one composite sludge sample from each of the three pits. A report by Wink Engineering indicated that the contents of the pits were exposed. The samples were analyzed for volatiles, cyanide, total phenol, flash point, pH, toxicity and oil and grease. Concentrations of chlorobenzene, ethylbenzene, toluene, and total xylenes were detected in the samples collected from the open pits. Wink Engineering concluded in the report that the Site did not pose a threat to human health or the environment since the constituents did not exceed limits specified in the Wink Engineering report. The nature of the specific limits was not defined in the Wink report (i.e., calculated background values, health-based screening levels, etc.).

18. In 1994, EPA contractors conducted sampling at the pits in support of a Site Inspection Prioritization Report. A limited number of samples of the pit sludge and in the drainage ditch was taken. The sludge samples were collected in and around the pits. During field activities, water was observed flowing from an overflow pipe from Pit 2 into the nearby drainage ditch. The sludge samples collected from the exposed pits indicated the presence of volatiles, semi-volatile organics, pesticides and metals.

19. In 1996, EPA contractor conducted an Expanded Site Inspection of Delta Shipyard. As part of the ESI, seven pit sludge samples, six surface and subsurface soil samples, two groundwater samples, four surface water samples, thirty-seven stream sediment samples and six field Quality Control samples were collected. The pit sludge sample results indicated elevated concentrations of -methylnaphthalene, naphthalene, phenanthrene ethylbenzene, toluene, xylenes, chromium, lead and zinc. Of these, the highest concentrations were the Poly Aromatic Hydrocarbons ("PAH"). In addition, samples collected from groundwater, surface water and soil indicated an elevated presence of PAHs, indicating migration of these contaminants from the pits to the surrounding media.

20. In 2012, EPA's contractors conducted a removal assessment of the Site. A total of 102 waste and soil characterization samples were collected and submitted for analyses by EPA. EPA analyzed the samples for Target Analyte List ("TAL") metals, including mercury, Target Compound List ("TCL") Volatile Organic Compounds ("VOC"), TCL semi-volatile organic compounds ("SVOC"), pesticides, and polychlorinated bi-phenyls ("PCB"). A review of the waste source sample results indicates that TAL metals, PCBs, PAHs and TCL VOCs exceeded EPA Site Specific Action Levels-EPA industrial Regional Screening Levels ("RSLs"). Specifically, the TAL metals including arsenic (up to 63.5 milligrams per kilogram) and lead (up to 1,170 mg/kg). PAH including naphthalene (up to 188 mg/kg), and TCL VOCs including ethylbenzene (up to 6.48 mg/kg). A review of the waste disposal characterization samples indicates that the waste is non-hazardous. Specifically, the Toxicity Characteristic Leaching Procedure ("TCLP") results indicated that the material contained within Pits 1,2 and 3 does not contain a toxicity characteristic of a hazardous waste per Table of 40 CFR Section 261.24. Based on TCLP sample analysis, the associated Site waste was determined to be non-hazardous. A review of the soil characterization results indicates that TAL metals, PAHs, and TCL VOCs exceeded EPA Site-Specific Action Levels-EPA Industrial RSLs. Specifically, the TAL metals including arsenic (up to 63.9 mg/kg) and lead (up to 2,170 mg/kg). PAHs including benzo(a)anthracene (up to 2.8 mg/kg), benzo(a)pyrene (up to 1.9 mg/kg) and ethylbenzene (up to 12 mg/kg).

V. CONCLUSIONS OF LAW AND DETERMINATIONS

21. Based on the Findings of Fact set forth above and the administrative record, EPA has determined that:

a. The Delta Shipyard Superfund Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. Each Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

c. Each Respondent is a liable party under one or more provisions of Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

(1) Respondent Dean Services West, L.L.C. is the "owner(s)" and/or "operator(s)" of the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1).

(2) Respondent Chromalloy American, LLC was the "owner" and/or "operator" of the facility at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2).

d. The contamination arsenic, antimony, anthracene, barium, benzene, cadmium, ethylbenzene, fluorine, lead, manganese, mercury, 2-methylnaphthalene, phenanthrene, pyrene, o-xylene and m,p-xylene found at the Site, as identified in the Findings of Fact above, includes "hazardous substance[s]" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

e. The conditions described in Paragraphs 8-20 of the Findings of Fact above constitute an actual and/or threatened "release" of a hazardous substance from the facility as defined by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

f. The conditions at the Site may constitute a threat to public health or welfare or the environment, based on the factors set forth in Section 300.415(b)(2) of the NCP. These factors include, but are not limited to, the following:

- (1) actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances; this factor is present at the Site due to the existence of contaminated sediments and recreational fishing in surface waters adjacent to the Site;
- (2) high levels of hazardous substances in soils largely at or near the surface, that may migrate; this factor is present at the Site due to the existence of soils adjacent to the pits that have been

contaminated by overflows from the pits and that have the potential to enter adjacent surface waters and wetlands;

- (3) weather conditions that may cause hazardous substances to migrate or be released; this factor is present at the Site due to the existence of material containing contaminants are in direct contact with surface water pathways and contaminants in the pits are exposed to the elements which can result in release to surface water and adjacent wetlands: and;
- (4) the unavailability of other appropriate federal or state response mechanisms to respond to the release; this factor supports the actions required by this Order at the Site because the State of Louisiana requested EPA address the site.

g. The conditions at the Site may constitute an imminent and substantial endangerment to public health or welfare or the environment.

h. The actions required by this Order are necessary to protect the public health, welfare, or the environment.

VI. ORDER

22. Based upon the Findings of Fact, Conclusions of Law and Determinations set forth above, and the administrative record, Respondents are hereby ordered to comply with all provisions of this Order and any modifications to this Order, including all appendices to this Order and all documents incorporated by reference into this Order.

VII. OPPORTUNITY TO CONFER

23. Within (5) days after this Order is signed by the Regional Administrator or his/her delegatee, Respondents may, in writing, request a conference with EPA to discuss this Order, including its applicability, the factual findings and the determinations upon which it is based, the appropriateness of any actions Respondents are ordered to take, or any other relevant and material issues or contentions that Respondents may have regarding this Order.

24. Respondents may appear in person or by an attorney or other representative at the conference. Any such conference shall be held at least (5) days prior to the Effective Date. Respondents may also submit written comments or statements of position on any matter pertinent to this Order no later than (5) days after the conference, or within (10) days after this Order is signed if a conference is not requested. This conference is not an evidentiary hearing, does not constitute a proceeding to challenge this Order, and does not give Respondents a right to seek review of this Order. Any request for a conference or written comments or statements should be submitted to:

Amy Salinas, Assistant Regional Counsel (6RC-S)
United States Environmental Protection Agency Region 6
1445 Ross Avenue, Suite 1200

Dallas, TX 75202
214-665-8063
Salinas.amy@epa.gov

VIII. EFFECTIVE DATE

25. This Order shall be effective (5) days after the Order is signed by the Regional Administrator or his/her delegatee unless a conference is requested or written materials submitted in accordance with Section VII (Opportunity to Confer). If a conference is requested or written materials are submitted, this Order shall be effective on the later of the 10th day after the conference, or the 10th day after written materials, if any, are submitted, unless EPA determines that the Order should be modified based on the conference or written materials. In such event, EPA shall notify Respondents, within the 10- day period, that EPA intends to modify the Order. The modified Order shall be effective (3) days after it is signed by the Regional Administrator or his/her delegatee.

IX. NOTICE OF INTENT TO COMPLY

26. On or before the Effective Date, each Respondent shall notify EPA in writing of Respondent's irrevocable intent to comply with this Order. Such written notice shall be sent to EPA as provided in Paragraph 24. Each Respondent's written notice shall describe, using facts that exist on or prior to the Effective Date, any "sufficient cause" defense(s) asserted by such Respondent under Sections 106(b) and 107(c)(3) of CERCLA, 42 U.S.C. §§ 9606(b) and 9607(c)(3). The absence of a response by EPA to the notice required by this Paragraph shall not be deemed to be acceptance of any Respondent's assertions. Failure of any Respondent to provide such written notice within this time period shall, as of the Effective Date, be treated as a violation of this Order by such Respondent.

X. DESIGNATION OF CONTRACTORS AND PROJECT COORDINATORS

27. **Selection of Contractors, Personnel.** All Work performed under this Order shall be under the direction and supervision of qualified personnel. Within 30 days after the Effective Date, and before the Work outlined below begins, Respondents shall notify EPA in writing of the names, titles, addresses, telephone numbers, email addresses, and qualifications of the personnel, including contractors, subcontractors, consultants, and laboratories to be used in carrying out such Work. If, after the commencement of Work, Respondents retain additional contractors or subcontractors, Respondents shall notify EPA of the names, titles, contact information, and qualifications of such contractors or subcontractors retained to perform the Work at least 20 days prior to commencement of Work by such additional contractors or subcontractors. EPA retains the right, at any time, to disapprove of any or all of the contractors and/or subcontractors retained by Respondents. If EPA disapproves of a selected contractor or subcontractor, Respondents shall retain a different contractor or subcontractor and shall notify EPA of that contractor's or subcontractor's name, title, contact information, and qualifications within 30 days after EPA's disapproval. With respect to any proposed contractor, Respondents shall demonstrate that the proposed contractor demonstrates compliance with ASQ/ANSI E4:2014 "Quality management systems for environmental information and technology programs – Requirements with guidance for use" (American Society for Quality, February 2014), by submitting a copy of the proposed contractor's Quality Management Plan (QMP). The QMP should be prepared in accordance with

“EPA Requirements for Quality Management Plans (QA/R-2),” EPA/240/B-01/002 (Reissued May 2006) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the Work for Respondents shall be subject to EPA’s review for verification based on objective assessment criteria (e.g., experience, capacity, technical expertise) and that they do not have a conflict of interest with respect to the project.

28. Within 10 days after the Effective Date, Respondents shall designate a Project Coordinator who shall be responsible for administration of the Work required by this Order and shall submit to EPA the designated Project Coordinator’s name, title, address, telephone number, email address, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on-Site or readily available during the Work. EPA retains the right to disapprove of a designated Project Coordinator who does not meet the requirements of Paragraph 27 (Selection of Contractors, Personnel). If EPA disapproves of the designated Project Coordinator, Respondents shall retain a different Project Coordinator and shall notify EPA of that person’s name, title, contact information, and qualifications within 15 days following EPA’s disapproval. Respondents shall have the right to change their Project Coordinator, subject to EPA’s right to disapprove. Respondents shall notify EPA 30 days before such a change is made. The initial notification may be made orally, but shall be promptly followed by a written notification. Communications between Respondents and EPA, and all documents concerning the activities performed pursuant to this Order, shall be directed to the Project Coordinator. Receipt by Respondents’ Project Coordinator of any notice or communication from EPA relating to this Order shall constitute receipt by all Respondents.

29. EPA has designated Mr. Brian Mueller of the EPA Region 6 Superfund Division, as its Remedial Project Manager (“RPM”) or EPA will notify Respondents of a change of its designated RPM. Communications between Respondents and EPA, and all documents concerning the activities performed pursuant to this Order, shall be directed to the EPA RPM in accordance with Paragraph 39.a.

30. EPA’s RPM shall have the authority lawfully vested in a Remedial Project Manager (RPM) and On-Scene Coordinator (OSC) by the NCP. In addition, EPA’s RPM shall have the authority, consistent with the NCP, to halt, conduct, or direct any Work required by this Order, or to direct any other response action when s/he determines that conditions at the Site constitute an emergency situation or may present a threat to public health or welfare or the environment. Absence of the EPA RPM from the area under study pursuant to this Order shall not be cause for stoppage or delay of Work.

XI. WORK TO BE PERFORMED

31. For any regulation or guidance referenced in the Order, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after Respondents receive notification from EPA of the modification, amendment, or replacement.

32. Respondents shall conduct the RI/FS and prepare all plans in accordance with the provisions of this Order, the attached SOW, CERCLA, the NCP, and EPA guidance, including, but not limited to, the “Interim Final Guidance for Conducting Remedial Investigations and

Feasibility Studies under CERCLA" ("RI/FS Guidance"), OSWER Directive # 9355.3-01 (October 1988), available at <https://semspub.epa.gov/src/document/11/128301>, "Guidance for Data Useability in Risk Assessment (Part A), Final," OSWER Directive #9285.7-09A, PB 92-963356 (April 1992), available at <http://semspub.epa.gov/src/document/11/156756>, and guidance referenced therein, and guidance referenced in the SOW. The Remedial Investigation (RI) shall consist of collecting data to characterize site conditions, determining the nature and extent of the contamination at or from the Site, assessing risk to human health and the environment and conducting treatability testing as necessary to evaluate the potential performance and cost of the treatment technologies that are being considered. The Feasibility Study (FS) shall determine and evaluate (based on treatability testing, where appropriate) alternatives for remedial action to prevent, mitigate, or otherwise respond to or remedy the release or threatened release of hazardous substances at or from the Site. The alternatives evaluated must include, but shall not be limited to, the range of alternatives described in the NCP, 40 C.F.R. 300.430(e), and shall include remedial actions that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In evaluating the alternatives, Respondents shall address the factors required to be taken into account by Section 121 of CERCLA, 42 U.S.C. § 9621, and 40 C.F.R. § 300.430(e).

33. All written documents prepared by Respondents pursuant to this Order shall be submitted by Respondents in accordance with Section XII (Submission and Approval of Deliverables). With the exception of progress reports and the Health and Safety Plan, all such submittals will be reviewed and approved by EPA in accordance with Section XII (Submission and Approval of Deliverables). Respondents shall implement all EPA approved, conditionally approved, or modified deliverables.

34. Upon receipt of the draft Feasibility Study Report ("FS Report"), EPA will evaluate, as necessary, the estimates of the risk to the public and environment that are expected to remain after a particular remedial alternative has been completed and will evaluate the cost, implementability, and long-term effectiveness of any proposed ICs for that alternative.

35. Modification of the RI/FS Work Plan

a. If at any time during the RI/FS process, Respondents identify a need for additional data, Respondents shall submit a memorandum documenting the need for additional data to EPA's RPM within 30 days after identification. EPA in its discretion will determine whether the additional data will be collected by Respondents and whether it will be incorporated into deliverables.

b. In the event of unanticipated or changed circumstances at the Site, Respondents shall notify EPA's RPM by telephone within 24 hours of discovery of the unanticipated or changed circumstances. In the event that EPA determines that the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan, EPA shall modify the RI/FS Work Plan in writing accordingly or direct Respondents to modify and submit the modified RI/FS Work Plan to EPA for approval. Respondents shall perform the RI/FS Work Plan as modified.

c. EPA may determine that, in addition to tasks defined in the initially approved RI/FS Work Plan, other additional work may be necessary to accomplish the objectives of the RI/FS. Respondents shall perform these response actions in addition to those required by the initially approved RI/FS Work Plan, including any approved modifications, if EPA determines that such actions are necessary for a thorough RI/FS.

d. Respondents shall complete the additional work according to the standards, specifications, and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written RI/FS Work Plan supplement. EPA reserves the right to conduct the work itself, to seek reimbursement from Respondents for the costs incurred in performing the work, and/or to seek any other appropriate relief.

e. Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions at the Site.

36. Off-Site Shipments

a. Respondents may ship hazardous substances, pollutants, and contaminants from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondents will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Respondents obtain a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b).

b. Respondents may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, they provide written notice to the appropriate state environmental official in the receiving facility's state and to EPA's RPM. This notice requirement shall not apply to any off-Site shipments when the total quantity of all such shipments will not exceed ten cubic yards. The written notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Respondents shall also notify the state environmental official referenced above and EPA's RPM of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Respondents shall provide the written notice after the award of the contract for the RI/FS and before the Waste Material is shipped.

c. Respondents may ship Investigation Derived Waste (IDW) from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, EPA's "Guide to Management of Investigation Derived Waste," OSWER 9345.3-03FS (Jan. 1992), and any IDW-specific requirements contained in the SOW. Wastes shipped off-Site to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 C.F.R. § 261.4(e) shipped off-Site for treatability studies, are not subject to 40 C.F.R. § 300.440.

37. **Meetings.** Respondents shall make presentations at, and participate in, meetings at the request of EPA during the preparation of the RI/FS. In addition to discussion of the

technical aspects of the RI/FS, topics will include anticipated problems or new issues. Meetings will be scheduled at EPA's discretion.

38. **Progress Reports.** In addition to the deliverables set forth in this Order, Respondents shall submit written monthly progress reports to EPA by the 20th day of the following month. At a minimum, with respect to the preceding month, these progress reports shall:

- a. describe the actions that have been taken to comply with this Order;
- b. include all results of sampling and tests and all other data received by Respondents;
- c. describe Work planned for the next two months with schedules relating such Work to the overall project schedule for RI/FS completion; and
- d. describe all problems encountered in complying with the requirements of this Order and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

XII. SUBMISSION AND APPROVAL OF DELIVERABLES

39. Submission of Deliverables

a. General Requirements for Deliverables

- (1) Except as otherwise provided in this Order, Respondents shall direct all submissions required by this Order to EPA's RPM at Mr. Brian Mueller (6SF-RL), US EPA Region 6, 1445 Ross Avenue, Suite 1200, Dallas, TX 75202 or by electronic mail at Mueller.brian@epa.gov. Respondents shall submit all deliverables required by this Order, the attached SOW, or any approved work plan in accordance with the schedule set forth in such plan.
- (2) Respondents shall submit all deliverables in electronic form. Technical specifications for sampling and monitoring data and spatial data are addressed in Paragraph 39.b. All other deliverables shall be submitted in the electronic form specified by EPA'S RPM. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5 x 11 inches. Respondents shall also provide paper copies of such exhibits.

b. Technical Specifications for Deliverables

- (1) Sampling and monitoring data should be submitted in standard regional Microsoft Access format. Other delivery methods may be allowed if electronic direct submission presents a significant burden or as technology changes.

- (2) Spatial data, including spatially-referenced data and geospatial data, should be submitted: (i) in the Microsoft Access format; and (ii) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at <https://edg.epa.gov/EME/>.
- (3) Each file must include an attribute name for each site unit or sub-unit submitted. Consult <https://www.epa.gov/geospatial/geospatial-policies-and-standards> for any further available guidance on attribute identification and naming.
- (4) Spatial data submitted by Respondents does not, and is not intended to, define the boundaries of the Site.

40. **Approval of Deliverables**

a. **Initial Submissions**

- (1) After review of any deliverable that is required to be submitted for EPA approval under this Order or the attached SOW, EPA shall: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.
- (2) EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or (ii) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

b. **Resubmissions.** Upon receipt of a notice of disapproval under Paragraph 40.a(1) (Initial Submissions), or if required by a notice of approval upon specified conditions under Paragraph 40.a(1), Respondents shall, within 30 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval. After review of the resubmitted deliverable, EPA may: (a) approve, in whole or in part, the

resubmission; (b) approve the resubmission upon specified conditions; (c) modify the resubmission; (d) disapprove, in whole or in part, the resubmission, requiring Respondents to correct the deficiencies; or (e) any combination of the foregoing.

c. **Implementation.** Upon approval, approval upon conditions, or modification by EPA under Paragraph 40.a (Initial Submissions) or Paragraph 40.b (Resubmissions), of any deliverable, or any portion thereof: (i) such deliverable, or portion thereof, will be incorporated into and enforceable under the Order; and (ii) Respondents shall take any action required by such deliverable, or portion thereof. Implementation of any non-deficient portion of a submission shall not relieve Respondents of any liability for penalties under Section XX (Enforcement/Work Takeover) for violations of this Order.

41. Notwithstanding the receipt of a notice of disapproval, Respondents shall proceed to take any action required by any non-deficient portion of the submission, unless otherwise directed by EPA.

42. In the event that EPA takes over some of the tasks, but not the preparation of the Remedial Investigation Report ("RI Report") or the FS Report, Respondents shall incorporate and integrate information supplied by EPA into those reports.

43. Respondents shall not proceed with any activities or tasks dependent on the following deliverables until receiving EPA approval, approval on condition, or modification of such deliverables: RI/FS Work Plan; Sampling and Analysis Plan; draft RI Report; Treatability Testing Work Plan; Treatability Testing Sampling and Analysis Plan; Treatability Testing Health and Safety Plan; and draft FS Report. While awaiting EPA approval, approval on condition, or modification of these deliverables, Respondents shall proceed with all other tasks and activities that may be conducted independently of these deliverables, in accordance with the schedule set forth under this Order.

44. For all remaining deliverables not listed in Paragraph 43, Respondents shall proceed with all subsequent tasks, activities, and deliverables without awaiting EPA approval of the submitted deliverable. EPA reserves the right to stop Respondents from proceeding further, either temporarily or permanently, on any task, activity, or deliverable at any point during the Work.

45. **Material Defects.** If an initially submitted or resubmitted plan, report, or other deliverable contains a material defect, and the plan, report, or other deliverable is disapproved or modified by EPA under Paragraph 40.a (Initial Submissions) or 40.b (Resubmissions) due to such material defect, Respondents shall be deemed in violation of this Order for failure to submit such plan, report, or other deliverable timely and adequately. Respondents may be subject to penalties for such violation as provided in Section XX (Enforcement/Work Takeover).

46. Neither failure of EPA to expressly approve or disapprove of Respondents' submissions within a specified time period, nor the absence of comments, shall be construed as approval by EPA.

XIII. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

47. Respondents shall use quality assurance, quality control, and other technical activities and chain of custody procedures for all samples consistent with “EPA Requirements for Quality Assurance Project Plans (QA/R5),” EPA/240/B-01/003, March 2001 (reissued May 2006), “Guidance for Quality Assurance Project Plans (QA/G-5),” EPA/240/R-02/009 (December 2002), and “Uniform Federal Policy for Quality Assurance Project Plans, Parts 1-3,” EPA/505/B-04/900A-900C (March 2005).

48. Laboratories

a. Respondents shall ensure that EPA personnel and its authorized representatives are allowed access at reasonable times to all laboratories utilized by Respondents pursuant to this Order. In addition, Respondents shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the Quality Assurance Project Plan (QAPP) for quality assurance, quality control, and technical activities that will satisfy the stated performance criteria as specified in the QAPP and that sampling and field activities are conducted in accordance with EPA’s “Field Operations Group Operational Guidelines for Field Activities” (<http://www.epa.gov/region8/qa/FieldOperationsGroupOperationalGuidelinesForFieldActivities.pdf>) and “EPA QA Field Activities Procedure” CIO 2105-P-02.1 (9/23/2014), available at <https://www.epa.gov/irmpoli8/epa-qa-field-activities-procedures>. Respondents shall ensure that the laboratories they utilize for the analysis of samples taken pursuant to this Order meet the competency requirements set forth in EPA’s “Policy to Assure Competency of Laboratories, Field Sampling, and Other Organizations Generating Environmental Measurement Data under Agency-Funded Acquisitions,” available at <https://www.epa.gov/measurements/documents-about-measurement-competency-under-acquisition-agreements>, and that the laboratories perform all analyses using EPA-accepted methods. Accepted EPA methods consist of, but are not limited to, methods that are documented in the EPA’s Contract Laboratory Program (<https://www.epa.gov/superfund/programs/clp/>), SW 846 “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods” (<https://www.epa.gov/hw-sw846>), “Standard Methods for the Examination of Water and Wastewater” (<http://www.standardmethods.org/>), and 40 C.F.R. Part 136, “Air Toxics - Monitoring Methods” (<https://www.epa.gov/ttnamtl1/airtox.html>).

b. Upon approval by EPA, Respondents may use other appropriate analytical methods, as long as (i) quality assurance/quality control (QA/QC) criteria are contained in the methods and the methods are included in the QAPP, (ii) the analytical methods are at least as stringent as the methods listed above, and (iii) the methods have been approved for use by a nationally recognized organization responsible for verification and publication of analytical methods, e.g., EPA, ASTM, NIOSH, OSHA, etc.

c. Respondents shall ensure that all laboratories they use for analysis of samples taken pursuant to this Order have a documented Quality System that complies with ASQ/ANSI E4:2014 “Quality Management Systems for Environmental Information and Technology Programs – Requirements With Guidance for Use” (American Society for Quality, February 2014), and “EPA Requirements for Quality Management Plans (QA/R-2)” EPA/240/B-01/002 (March 2001, reissued May 2006), or equivalent documentation as determined by EPA. EPA may consider Environmental Response Laboratory Network (ERLN) laboratories,

laboratories accredited under the National Environmental Laboratory Accreditation Program (NELAP), or laboratories that meet International Standardization Organization (ISO 17025) standards or other nationally recognized programs as meeting the Quality System requirements.

d. Respondents shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Order are conducted in accordance with the procedures set forth in the approved QAPP.

49. **Sampling**

a. Upon request, Respondents shall provide split or duplicate samples to EPA or its authorized representatives. Respondents shall notify EPA not less than 7 days in advance of any sample collection activity. In addition, EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall provide to Respondents split or duplicate samples of any samples it takes as part of EPA's oversight of Respondents' implementation of the Work, and any such samples shall be analyzed in accordance with the approved QAPP.

b. Respondents shall submit to EPA, in the next monthly progress report as described in Paragraph 38 (Progress Reports) the results of all sampling and/or tests or other data obtained or generated by or on behalf of Respondents with respect to the Site and/or the implementation of this Order.

XIV. PROPERTY REQUIREMENTS

50. **Agreements Regarding Access and Non-Interference.** Respondents shall, with respect to any Non-Respondent Owner's Affected Property, use best efforts to secure from such Non-Respondent Owner an agreement, enforceable by Respondents and by EPA, providing that such Non-Respondent Owner, and Owner Respondent shall, with respect to Owner Respondent's Affected Property: (i) provide EPA, and the other Respondents, and their representatives, contractors, and subcontractors with access at all reasonable times to such Affected Property to conduct any activity regarding the Order, including those listed in Paragraph 50.a (Access Requirements); and (ii) refrain from using such Affected Property in any manner that EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Material, or interfere with or adversely affect the implementation or integrity of the Work.

a. **Access Requirements.** The following is a list of activities for which access is required regarding the Affected Property:

- (1) Monitoring the Work;
- (2) Verifying any data or information submitted to EPA;
- (3) Conducting investigations regarding contamination at or near the Site;
- (4) Obtaining samples;

- (5) Assessing the need for, planning, implementing, or monitoring response actions;
- (6) Assessing implementation of quality assurance and quality control practices as defined in the approved QAPP;
- (7) Implementing the Work pursuant to the conditions set forth in Paragraph 71 (Work Takeover);
- (8) Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Respondents or their agents, consistent with Section XV (Access to Information);
- (9) Assessing Respondents' compliance with the Order;
- (10) Determining whether the Affected Property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted under the Order; and
- (11) Implementing, monitoring, maintaining, reporting on, and enforcing any land, water, or other resource use restrictions regarding the Affected Property.

51. **Best Efforts.** As used in this Section, "best efforts" means the efforts that a reasonable person in the position of Respondents would use so as to achieve the goal in a timely manner, including the cost of employing professional assistance and the payment of reasonable sums of money to secure access and/or use restriction agreements, as required by this Section. If, within 60 days after the Effective Date, Respondents are unable to accomplish what is required through "best efforts," they shall notify EPA, and include a description of the steps taken to comply with the requirements. If EPA deems it appropriate, it may assist Respondents, or take independent action, in obtaining such access and/or use restrictions. EPA reserves the right to seek payment from Respondents for all costs, including cost of attorneys' time, incurred by the United States in obtaining such access or agreements to restrict land, water, or other resource use.

52. **Notice to Successors-in-Title**

a. Owner Respondent shall, within 15 days after the Effective Date, submit for EPA approval a notice to be filed regarding Owner Respondent's Affected Property in the appropriate land records. The notice must: (1) include a proper legal description of the Affected Property; (2) provide notice to all successors-in-title: (i) that the Affected Property is part of, or related to, the Site; (ii) that EPA determined that an RI/FS must be performed at the Site; and (iii) that EPA has issued an order to potentially responsible parties requiring implementation of such RI/FS; and (3) identify this Order and the date this Order was issued by EPA. Owner Respondent shall record the notice within 10 days after EPA's approval of the notice and submit to EPA, within 10 days thereafter, a certified copy of the recorded notice.

b. Owner Respondent shall, prior to entering into a contract to Transfer Owner Respondent's Affected Property, or 60 days prior to Transferring Owner Respondent's Affected Property, whichever is earlier:

- (1) Notify the proposed transferee that EPA has determined that an RI/FS must be performed at the Site, and that EPA has issued an order to potentially responsible parties requiring implementation of such RI/FS, and identifying this Order and the date it was issued by EPA; and
- (2) Notify EPA of the name and address of the proposed transferee and provide EPA with a copy of the notice that it provided to the proposed transferee.

53. In the event of any Transfer of the Affected Property, unless EPA otherwise consents in writing, Respondents shall continue to comply with their obligations under the Order, including their obligation to secure access and ensure compliance with any land, water or other resource use restrictions regarding the Affected Property.

54. Notwithstanding any provision of this Order, EPA retains all of its access authorities and rights, as well as all of its rights to require land, water, or other resource use restrictions, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statute or regulations.

XV. ACCESS TO INFORMATION

55. Respondents shall provide to EPA, upon request, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as "Records") within Respondents' possession or control or that of their contractors or agents relating to activities at the Site or to the implementation of this Order, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information regarding the Work. Respondents shall also make available to EPA, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

56. Privileged and Protected Claims

a. Respondents may assert that all or part of a Record requested by EPA is privileged or protected as provided under federal law, in lieu of providing the Record, provided Respondents comply with Paragraph 56.b, and except as provided in Paragraph 56.b.

b. If Respondents assert a claim of privilege or protection, they shall provide EPA with the following information regarding such Record: its title; its date; the name, title, affiliation (e.g., company or firm), and address of the author, of each addressee, and of each recipient; a description of the Record's contents; and the privilege or protection asserted. If a claim of privilege or protection applies only to a portion of a Record, Respondents shall provide the Record to EPA in redacted form to mask the privileged or protected portion only.

Respondents shall retain all Records that they claim to be privileged or protected until EPA or a court determines that such Record is privileged or protected.

c. Respondents may make no claim of privilege or protection regarding: (1) any data regarding the Site, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, radiological, or engineering data, or the portion of any other Record that evidences conditions at or around the Site; or (2) the portion of any Record that Respondents are required to create or generate pursuant to this Order.

57. **Business Confidential Claims.** Respondents may assert that all or part of a Record provided to EPA under this Section or Section XVI (Record Retention) is business confidential to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Respondents shall segregate and clearly identify all Records or parts thereof submitted under this Order for which Respondents assert business confidentiality claims. Records claimed as confidential business information will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies Records when they are submitted to EPA, or if EPA has notified Respondents that the Records are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to Respondents.

58. Notwithstanding any provision of this Order, EPA retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

XVI. RECORD RETENTION

59. During the pendency of this Order and for a minimum of 10 years after Respondents' receipt of EPA's notification pursuant to Section XXVII (Notice of Completion of Work), each Respondent shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control, or that come into its possession or control, that relate in any manner to its liability under CERCLA with respect to the Site, provided, however, that Respondents who are potentially liable as owners or operators of the Site must retain, in addition, all Records that relate to the liability of any other person under CERCLA with respect to the Site. Each Respondent must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above, all non-identical copies of the last draft or final version of any Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to the performance of the Work, provided, however, that each Respondent (and its contractors and agents) must retain, in addition, copies of all data generated during performance of the Work and not contained in the aforementioned Records required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary.

60. At the conclusion of this document retention period, Respondents shall notify EPA at least 90 days prior to the destruction of any such Records, and, upon request by EPA, and except as provided in Paragraph 56 (Privileged and Protected Claims), Respondents shall deliver any such Records to EPA.

61. Within 30 days after the Effective Date, each Respondent shall submit a written certification to EPA's RPM that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to its potential liability regarding the Site since notification by the United States or the State, and that it has fully complied with any and all EPA and State requests for information regarding the Site pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927, and state law. Any Respondent unable to so certify shall submit a modified certification that explains in detail why it is unable to certify in full with regard to all Records.

XVII. COMPLIANCE WITH OTHER LAWS

62. Nothing in this Order limit Respondent's obligations to comply with the requirements of all applicable state and federal laws and regulations, except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and 40 C.F.R. §§ 300.400(e) and 300.415(j). In accordance with 40 C.F.R. § 300.415(j), all on-site actions required pursuant to this Order shall, to the extent practicable, as determined by EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (ARARs) under federal environmental or state environmental or facility siting laws.

63. No local, state, or federal permit shall be required for any portion of the Work conducted entirely on-site (i.e., within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work), including studies, if the action is selected and carried out in compliance with Section 121 of CERCLA, 42 U.S.C. § 9621. Where any portion of the Work that is not on-site requires a federal or state permit or approval, Respondents shall submit timely and complete applications and take all other actions necessary to obtain and to comply with all such permits or approvals. This Order is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

XVIII. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

64. **Emergency Response.** If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material on, at, or from the Site that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action to prevent, abate, or minimize such release or threat of release. Respondents shall take these actions in accordance with all applicable provisions of this Order, including, but not limited to, the Health and Safety Plan. Respondents shall also immediately notify EPA's RPM or, in the event of his/her unavailability, the Regional Duty Officer at (866)-372-7745 of the incident or Site conditions. In the event that Respondents fail to take appropriate response action as required by this Paragraph, and EPA takes such action instead, EPA reserves the right to pursue cost recovery.

65. **Release Reporting.** Upon the occurrence of any event during performance of the Work that Respondents are required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-To-Know Act (EPCRA), 42 U.S.C. § 11004, Respondents shall immediately orally notify EPA's RPM, or, in

the event of his/her unavailability, the Regional Duty Officer at (866) 372-7745 and the National Response Center at (800) 424-8802. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004.

66. For any event covered under this Section, Respondents shall submit a written report to EPA within 7 days after the onset of such event, setting forth the action or event that occurred and the measures taken, and to be taken, to mitigate any release or threat of release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release or threat of release.

XIX. PAYMENT OF RESPONSE COSTS

67. Upon EPA's written demand, Respondents shall pay EPA all Response Costs incurred or to be incurred in connection with this Order. On a periodic basis, EPA will send Respondents a bill requiring payment of all Response Costs incurred by the United States with respect to this Order that includes a SCORPIOS Report, which includes direct and indirect costs incurred by EPA, its contractors, and the Department of Justice.

68. Respondents shall make all payments within 30 days after receipt of each written demand requiring payment. Payment shall be made to EPA by Fedwire Electronic Funds Transfer (EFT) to:

Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York NY 10045
Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

and shall reference Site/Spill ID Number 06GC and the EPA docket number for this action.

69. At the time of payment, Respondents shall send notice that payment has been made to Chief, Enforcement Assessment Section, 6SF-TE, 1445 Ross Avenue, Dallas, Texas 75202, and to the EPA Cincinnati Finance Office by email at cinwd_acctsreceivable@epa.gov, or by mail to

EPA Cincinnati Finance Office
26 W. Martin Luther King Drive
Cincinnati, Ohio 45268

Such notice shall reference Site/Spill ID Number 06GC and the EPA docket number for this action.

70. In the event that the payments for Response Costs are not made within 30 days after Respondents' receipt of a written demand requiring payment, Respondents shall pay

Interest on the unpaid balance. The Interest on Response Costs shall begin to accrue on the date of the written demand and shall continue to accrue until the date of payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondents' failure to make timely payments under this Section. Respondents shall make all payments required by this Paragraph in the manner described in Paragraphs 68 and 69.

XX. ENFORCEMENT/WORK TAKEOVER

71. Any willful violation, or failure or refusal to comply with any provision of this Order may subject Respondents to civil penalties of up to \$53,907 per violation per day, as provided in Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1), and the Civil Monetary Penalty Inflation Adjustment Rule, 81 Fed. Reg. 43,091, 40 C.F.R. Part 19.4. In the event of such willful violation, or failure or refusal to comply, EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and/or may seek judicial enforcement of this Order pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606. In addition, nothing in this Order shall limit EPA's authority under Section XXIV (Financial Assurance). Respondents may also be subject to punitive damages in an amount up to three times the amount of any costs incurred by the United States as a result of such failure to comply, as provided in Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3).

XXI. RESERVATIONS OF RIGHTS BY EPA

72. Nothing in this Order shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants, or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing in this Order shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Order, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law. EPA reserves the right to bring an action against Respondents under Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of any response costs incurred by the United States related to this Order or the Site and not paid by Respondents.

XXII. OTHER CLAIMS

73. By issuance of this Order, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents. The United States or EPA shall not be deemed a party to any contract entered into by Respondents or their directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Order.

74. Nothing in this Order constitutes a satisfaction of or release from any claim or cause of action against Respondents or any person not a party to this Order, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

75. Nothing in this Order shall be deemed to constitute preauthorization of a claim within the meaning of Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2), or 40 C.F.R. § 300.700(d).

76. No action or decision by EPA pursuant to this Order shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXIII. INSURANCE

77. No later than 30 days before commencing any on-site Work, Respondents shall secure, and shall maintain for the duration of this Order, commercial general liability insurance with limits of liability of \$2 million per occurrence, automobile liability insurance with limits of liability of \$1 million per accident, and umbrella liability insurance with limits of liability of \$5 million in excess of the required commercial general liability and automobile liability limits, naming EPA as an additional insured with respect to all liability arising out of the activities performed by or on behalf of Respondents pursuant to this Order. Within the same time period, Respondents shall provide EPA with certificates of such insurance and a copy of each insurance policy. Respondents shall submit such certificates and copies of policies each year on the anniversary of the Effective Date. In addition, for the duration of the Order, Respondents shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing Work on behalf of Respondents in furtherance of this Order. If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Respondents need provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor. Respondents shall ensure that all submittals to EPA under this Paragraph identify the Delta Shipyard Superfund Site, Houma, Terrebonne Parish, Louisiana and the EPA docket number for this action.

XXIV. FINANCIAL ASSURANCE

78. In order to ensure completion of the Work, Respondents shall secure financial assurance, initially in the amount of **\$2,500,000** ("Estimated Cost of the Work"). The financial assurance must be one or more of the mechanisms listed below, in a form substantially identical to the relevant sample documents available from EPA or under the "Financial Assurance - Orders" category on the Cleanup Enforcement Model Language and Sample Documents Database at <https://cfpub.epa.gov/compliance/models/>, and satisfactory to EPA. Respondents may use multiple mechanisms if they are limited to trust funds, surety bonds guaranteeing payment, and/or letters of credit.

a. A trust fund: (1) established to ensure that funds will be available as and when needed for performance of the Work; (2) administered by a trustee that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency; and (3) governed by an agreement that requires the trustee to make payments from the fund only when the Division Director, Superfund Division advises the trustee in writing that: (i) payments are necessary to fulfill the affected Respondents' obligations under the Order; or (ii)

funds held in trust are in excess of the funds that are necessary to complete the performance of Work in accordance with this Order;

b. A surety bond, issued by a surety company among those listed as acceptable sureties on federal bonds as set forth in Circular 570 of the U.S. Department of the Treasury, guaranteeing payment or performance in accordance with Paragraph 84 (Access to Financial Assurance);

c. An irrevocable letter of credit, issued by an entity that has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency, guaranteeing payment in accordance with Paragraph 84 (Access to Financial Assurance);

d. A demonstration by a Respondent that it meets the relevant financial test criteria of Paragraph 81; or

e. A guarantee to fund or perform the Work executed by a company (1) that is a direct or indirect parent company of a Respondent or has a "substantial business relationship" (as defined in 40 C.F.R. § 264.141(h)) with a Respondent; and (2) can demonstrate to EPA's satisfaction that it meets the financial test criteria of Paragraph 81.

79. **Standby Trust.** If Respondents seek to establish financial assurance by using a surety bond, a letter of credit, or a corporate guarantee, Respondents shall at the same time establish and thereafter maintain a standby trust fund, which must meet the requirements specified in Paragraph 78.a, and into which payments from the other financial assurance mechanism can be deposited if the financial assurance provider is directed to do so by EPA pursuant to Paragraph 84 (Access to Financial Assurance). An originally signed duplicate of the standby trust agreement must be submitted, with the other financial mechanism, to EPA in accordance with Paragraph 80. Until the standby trust fund is funded pursuant to Paragraph 84 (Access to Financial Assurance), neither payments into the standby trust fund nor annual valuations are required.

80. Within 30 days after the Effective Date, Respondents shall submit to EPA proposed financial assurance mechanisms in draft form in accordance with Paragraph 78 for EPA's review. Within 60 days after the Effective Date, or 30 days after EPA's approval of the form and substance of Respondents' financial assurance, whichever is later, Respondents shall secure all executed and/or otherwise finalized mechanisms or other documents consistent with the EPA-approved form of financial assurance and shall submit such mechanisms and documents to the Section Chief, Enforcement Assessment Section, Technical & Enforcement Branch, Superfund Division, 6SF-TE, 1445 Ross Avenue, Dallas, Texas 75202.

81. Respondents seeking to provide financial assurance by means of a demonstration or guarantee under Paragraph 78.d or 78.e must, within 30 days:

a. Demonstrate that:

(1) the affected Respondent or guarantor has:

- i. Two of the following three ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5; and
- ii. Net working capital and tangible net worth each at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and
- iii. Tangible net worth of at least \$10 million; and
- iv. Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; or

(2) The affected Respondent or guarantor has:

- i. A current rating for its senior unsecured debt of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A or Baa as issued by Moody's; and
- ii. Tangible net worth at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and
- iii. Tangible net worth of at least \$10 million; and
- iv. Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and

b. Submit to EPA for the affected Respondent or guarantor: (1) a copy of an independent certified public accountant's report of the entity's financial statements for the latest completed fiscal year, which must not express an adverse opinion or disclaimer of opinion; and (2) a letter from its chief financial officer and a report from an independent certified public accountant substantially identical to the sample letter and reports available from EPA or under the "Financial Assurance – Orders" subject list category on the Cleanup Enforcement Model Language and Sample Documents Database at <https://cfpub.epa.gov/compliance/models/>.

82. Respondents providing financial assurance by means of a demonstration or guarantee under Paragraph 78.d or 78.e must also:

a. Annually resubmit the documents described in Paragraph 81.b within 90 days after the close of the affected Respondent's or guarantor's fiscal year;

b. Notify EPA within 30 days after the affected Respondent or guarantor determines that it no longer satisfies the relevant financial test criteria and requirements set forth in this Section; and

c. Provide to EPA, within 30 days of EPA's request, reports of the financial condition of the affected Respondent or guarantor in addition to those specified in Paragraph 81.b; EPA may make such a request at any time based on a belief that the affected Respondent or guarantor may no longer meet the financial test requirements of this Section.

83. Respondents shall diligently monitor the adequacy of the financial assurance. If any Respondent becomes aware of any information indicating that the financial assurance provided under this Section is inadequate or otherwise no longer satisfies the requirements of this Section, such Respondent shall notify EPA of such information within 30 days. If EPA determines that the financial assurance provided under this Section is inadequate or otherwise no longer satisfies the requirements of this Section, EPA will notify the affected Respondent of such determination. Respondents shall, within 30 days after notifying EPA or receiving notice from EPA under this Paragraph, secure and submit to EPA for approval a proposal for a revised or alternative financial assurance mechanism that satisfies the requirements of this Section. Respondents shall follow the procedures of Paragraph 85 in seeking approval of, and submitting documentation for, the revised or alternative financial assurance mechanism. Respondents' inability to secure financial assurance in accordance with this Section does not excuse performance of any other obligation under this Order.

84. Access to Financial Assurance

a. If EPA determines that Respondents (1) have ceased implementation of any portion of the Work, (2) are seriously or repeatedly deficient or late in their performance of the Work, or (3) are implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice ("Performance Failure Notice") to both Respondents and the financial assurance provider regarding the affected Respondents' failure to perform. Any Performance Failure Notice issued by EPA will specify the grounds upon which such notice was issued and will provide Respondents a period of 10 days within which to remedy the circumstances giving rise to EPA's issuance of such notice. If, after expiration of the 10-day period specified in this Paragraph, Respondents have not remedied to EPA's satisfaction the circumstances giving rise to EPA's issuance of the relevant Performance Failure Notice, then, in accordance with any applicable financial assurance mechanism, EPA may at any time thereafter direct the financial assurance provider to immediately: (i) deposit any funds assured pursuant to this Section into the standby trust fund; or (ii) arrange for performance of the Work in accordance with this Order.

b. If EPA is notified by the provider of a financial assurance mechanism that it intends to cancel the mechanism, and the affected Respondent fails to provide an alternative financial assurance mechanism in accordance with this Section at least 30 days prior to the cancellation date, EPA may, prior to cancellation, direct the financial assurance provider to deposit any funds guaranteed under such mechanism into the standby trust fund for use consistent with this Section.

85. Modification of Amount, Form, or Terms of Financial Assurance.

Respondents may submit, on any anniversary of the Effective Date or following Respondents' request for, and EPA's approval of, another date, a request to reduce the amount, or change the form or terms, of the financial assurance mechanism. Any such request must be submitted to the EPA individual(s) referenced in Paragraph 80, and must include an estimate of the cost of the remaining Work, an explanation of the bases for the cost calculation, a description of the proposed changes, if any, to the form or terms of the financial assurance, and any newly proposed financial assurance documentation in accordance with the requirements of Paragraphs 78 and 79 (Standby Trust). EPA will notify Respondents of its decision to approve or disapprove a requested reduction or change. Respondents may reduce the amount or change the form or terms of the financial assurance mechanism only in accordance with EPA's approval. Within 30 days after receipt of EPA's approval of the requested modifications pursuant to this Paragraph, Respondents shall submit to the EPA individual(s) referenced in Paragraph 80 all executed and/or otherwise finalized documentation relating to the amended, reduced, or alternative financial assurance mechanism. Upon EPA's approval, the Estimated Cost of the Work shall be deemed to be the estimate of the cost of the remaining Work in the approved proposal.

86. Release, Cancellation, or Discontinuation of Financial Assurance.

Respondents may release, cancel, or discontinue any financial assurance provided under this Section only: (a) after receipt of documentation issued by EPA certifying completion of the Work; or (b) in accordance with EPA's written approval of such release, cancellation, or discontinuation.

XXV. MODIFICATION

87. The EPA RPM may make modify any plan or schedule or the SOW in writing or by oral direction. Any oral modification will be memorialized in writing by EPA within 5 days, but shall have as its effective date the date of EPA's RPM's oral direction. Any other requirements of this Order may be modified in writing by signature of the EPA Region 6 Superfund Division Director.

88. If Respondents seek permission to deviate from any approved Work Plan or schedule or the SOW, Respondents' Project Coordinator shall submit a written request to EPA for approval outlining the proposed modification and its basis. Respondents may not proceed with the requested deviation until receiving approval from the EPA RPM pursuant to Paragraph 87.

89. No informal advice, guidance, suggestion, or comment by EPA's RPM or other EPA representatives regarding any deliverables submitted by Respondents shall relieve

Respondents of their obligation to obtain any formal approval required by this Order, or to comply with all requirements of this Order, unless it is formally modified.

XXVI. DELAY IN PERFORMANCE

90. Respondents shall notify EPA of any delay or anticipated delay in performing any requirement of this Order. Such notification shall be made by telephone and email to the EPA RPM within 48 hours after Respondents first knew or should have known that a delay might occur. Respondents shall adopt all reasonable measures to avoid or minimize any such delay. Within 7 days after notifying EPA by telephone and email, Respondents shall provide to EPA written notification fully describing the nature of the delay, the anticipated duration of the delay, any justification for the delay, all actions taken or to be taken to prevent or minimize the delay or the effect of the delay, a schedule for implementation of any measures to be taken to mitigate the effect of the delay, and any reason why Respondents should not be held strictly accountable for failing to comply with any relevant requirements of this Order. Increased costs or expenses associated with implementation of the activities called for in this Order is not a justification for any delay in performance.

91. Any delay in performance of this Order that, in EPA's judgment, is not properly justified by Respondents under the terms of Paragraph 90 shall be considered a violation of this Order. Any delay in performance of this Order shall not affect Respondents' obligations to fully perform all obligations under the terms and conditions of this Order.

XXVII. NOTICE OF COMPLETION OF WORK

92. When EPA determines that all Work has been fully performed in accordance with this Order, with the exception of any continuing obligations required by this Order, including but not limited to, payment of Response Costs and Record Retention EPA will provide written notice to Respondents. If EPA determines that any Work has not been completed in accordance with this Order, EPA will notify Respondents, provide a list of the deficiencies, and require that Respondents modify the RI/FS Work Plan, if appropriate, in order to correct such deficiencies within 30 days after receipt of the EPA notice. The modified RI/FS Work Plan shall include a schedule for correcting such deficiencies. Within 15 days after receipt of written approval of the modified RI/FS Work Plan, Respondents shall implement the modified and approved RI/FS Work Plan and shall submit a modified draft RI Report and/or FS Report in accordance with the EPA notice. Failure by Respondents to implement the approved modified RI/FS Work Plan shall be a violation of this Order.

XXVIII. ADMINISTRATIVE RECORD

93. EPA has established an administrative record that contains the documents that form the basis for the issuance of this Order. It is available for review by appointment on weekdays between the hours of 9:00am and 5:00pm at the EPA offices in 1445 Ross Avenue, Dallas, Texas 75202. To review the administrative record, please contact Anna Copeland, Enforcement Officer, at 214-665-8144, copeland.anntasia@epa.gov to make an appointment.

94. EPA will determine the contents of the administrative record file for selection of the remedial action. Respondents shall submit to EPA documents developed during the course of

the RI/FS upon which selection of the remedial action may be based. Upon request of EPA, Respondents shall provide copies of plans, task memoranda for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports, and other reports. Upon request of EPA, Respondents shall additionally submit any previous studies conducted under state, local, or other federal authorities that may relate to selection of the remedial action, and all communications between Respondents and state, local, or other federal authorities concerning selection of the remedial action.

XXIX. SEVERABILITY

95. If a court issues an order that invalidates any provision of this Order or finds that Respondents have sufficient cause not to comply with one or more provisions of this Order, Respondents shall remain bound to comply with all provisions of this Order not invalidated or determined to be subject to a sufficient cause defense by the court's order.

It is so ORDERED.

BY: Carl E. Edlund, P.E. DATE: May 8, 2018
Carl E. Edlund, P.E.
Director, Superfund Division
Region 6
U.S. Environmental Protection Agency

EFFECTIVE DATE: _____

APPENDIX A

APPENDIX B: STATEMENT OF WORK
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
DELTA SHIPYARD SUPERFUND SITE
HOUMA, LOUISIANA

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APPENDIX B
STATEMENT OF WORK
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
DELTA SHIPYARD SUPERFUND SITE
HOUMA, TERREBONE PARISH, LOUISIANA

1. INTRODUCTION

1. This Statement of Work (SOW) provides an overview of work that will be carried out by Respondents as they implement a Remedial Investigation and Feasibility Study (RI/FS) for the Delta Shipyard Site. This RI/FS SOW is attached to the Unilateral Administrative Order on (UAO) for Remedial Investigation/Feasibility Study for the Site and is a supporting document for the UAO. Technical work described in the SOW is intended to provide more information to Respondents for purposes of implementing the UAO and is not intended to change the meaning of any UAO language. This SOW is also consistent with both the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the National Contingency Plan (NCP). Any discrepancies between the UAO and SOW are unintended, and whenever necessary, the UAO will control in any interpretive disputes.
2. The RI/FS is expected to be an iterative process. This SOW outlines a decision process that will be used to focus sampling programs to gather data that are needed for the decision process. The U.S. Environmental Protection Agency (EPA) understands there may be concern on the part of Respondents that such an iterative process could lead to substantial increases in the size, cost, and scope of the RI/FS. However, EPA has an obligation under CERCLA to protect human health and the environment wherever hazardous substances have been discharged or migrated in the environment. To balance these competing interests, EPA's Office of Solid Waste and Emergency Response is promoting more effective strategies (i.e., Triad Approach) for characterizing, monitoring, and cleaning up hazardous waste sites. The Triad Approach integrates systematic planning, dynamic work plans, and on-site analytical tools used to support decisions about hazardous waste sites. Additional information regarding the Triad Approach is attached and can be found at the following website: http://www.clu-in.org/conf/tio/triad_012303.
3. The purpose of the RI/FS is to investigate the nature and extent of contamination for the Site, to assess the potential risk to human health and the environment, to develop and evaluate potential remedial action alternatives, and to recommend a preferred alternative. The RI and FS are interactive and will be conducted concurrently, to the extent practicable in a manner that allows information and data collected during the RI to influence the development of remedial alternatives during the FS, which in turn affect additional information and data needs and the scope of any necessary treatability studies and risk assessments.
4. Respondents will conduct the RI/FS and will produce draft RI and FS reports that are in accordance with the UAO. The RI/FS will be consistent with the Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988) Data Quality Objectives (DQOs) planning process (EPA QA /G-4, August 2000), and other applicable guidance that EPA uses in conducting an RI/FS (a list of the primary guidance is attached), including potentially applicable guidance released by EPA after the effective date of this SOW. EPA is aware that not all guidance used for the RI/FS purposes may be applicable to the Site. EPA Project Managers for sites have the authority under the NCP to determine when application of any guidance would be inappropriate. Respondents may raise such guidance issues they consider appropriate

during the implementation of the UAO. EPA's decisions regarding guidance applicability will be incorporated into document approval correspondence or in other written correspondence as appropriate.

5. The RI/FS Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA describes the suggested report format and content for the draft RI and FS reports. Respondents will furnish all necessary personnel, materials, and services needed for, or incidental to performing the RI/FS, except as otherwise specified in the UAO.

6. At the completion of the RI/FS, EPA will be responsible for the selection of a Site remedy and will document this selection in one or more Records of Decision (RODs). The response action alternatives selected by EPA will meet the cleanup standards specified in Section 121 of CERCLA, 42 U.S.C. § 9621; the selected remedy will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements (ARARs), will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable, and will address the statutory preference for treatment as a principal element, as appropriate under the NCP. The final RI/FS report, as approved by EPA, will, with the administrative record, form the basis for the selection of the Site's remedy and will provide the information necessary to support development of one or more RODs.

As specified in Section 104(a)(I) of CERCLA, 42 U.S.C. § 9604(a)(I), EPA will provide oversight of Respondents' activities throughout implementation of the UAO. Respondents will support EPA's initiation and conduct of activities related to implementation of oversight activities.

Purpose of the Statement of Work

7. This SOW sets forth certain requirements of the UAO for implementation of the Work pertaining to the RI/FS for the Site. The Respondents shall undertake the RI/FS according to the UAO, including, but not limited to, this SOW.

Objectives of the Remedial Investigation/Feasibility Study

8. The objectives of the RI/FS are to investigate the nature and extent of contamination at or from the Site and to develop and evaluate potential remedial alternatives, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, 42 U.S.C. § 9601, *et seq.*); as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA); and in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (National Contingency Plan (NCP)). Specifically, these objectives are to determine the presence or absence, types, and quantities (concentrations) of contaminants; mechanism of contaminant release to pathway(s); direction of pathway(s) transport; boundaries of source(s) and pathway(s); and environmental/public health receptors.

Scope of Remedial Investigation and Feasibility Study

9. The general scope of the RI/FS shall be to address all contamination at the Site resulting from the hazardous substances present at the Site.

Description of the Site

10. The Delta Shipyard Superfund Site (Site) is located in a 165 acre industrial park on the south side of the City of Houma, Terrebone Parish, Louisiana. Delta Shipyard was a cleaning and repair facility for small cargo boats, fishing boats, and oil barges. The site is located at 202 Industrial Boulevard, approximately 0.5 mile east of Howard Avenue.

The former Delta Shipyard was owned by Delta Ironworks, Inc.. Delta Ironworks, Inc. was formed by the merging of several companies in 1972. The entire property consisted of 165 acres and was home to seven divisions of Delta Ironworks, including Delta Shipyard. In 1973, Delta Ironworks was merged into Chromalloy American Corporation of St. Louis, Missouri. Chromalloy maintained all seven of the divisions until November 1980, when five of the divisions were sold to Delta Services Industries of Houma, Louisiana including Delta Shipyard. Mr. Lynn Dean (of Dean Boats, Inc.) purchased 110 acres of the industrial park from Delta Services in 1986 including the property owned by Delta Shipyard. Oily waste from the cleaning process was stored in several unlined earthen pits used as evaporation ponds. Large volumes of waste remain on site, and hazardous substances have been found in ground water, surface water and soil. Wetlands surrounding the Site are contaminated with metals and polyaromatic hydrocarbons. Without remediation of the site, additional releases to ground water, surface water and soil will continue to occur.

II. PERFORMANCE STANDARDS

11. The Performance Standards for this RI/FS shall include substantive requirements, criteria, or limitations which are specified in the UAO, including, but not limited to, this SOW. Submissions approved by the EPA are an enforceable part of the UAO: consequently, cleanup goals and other substantive requirement, criteria, or limitations which are specified in EPA-approved submissions are Performance Standards. The EPA will use the Performance Standards to determine if the work, including, but not limited to, the RI/FS, has been completed. The Respondents shall ensure that the RI/FS is consistent with the EPA's "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (EPA 1988b, hereinafter "the RI/FS guidance") and other applicable sections of EPA guidance cited herein. If the EPA approves a schedule for any work pursuant to the UAO, the schedule shall supersede any timing requirements established in the RI/FS. Likewise, if the EPA, pursuant to the UAO, requires the Respondents to perform certain work at a point in time which is not consistent with the RI/FS guidance or other guidance, the Respondents shall perform the work as specified by the UAO, for example, on page B-2, the RI/FS guidance says that the Field Investigation is complete when the contractors or subcontractors are demobilized from the field; however, if the EPA, pursuant to the UAO, requires the Respondents to perform additional field investigation activities once the contractors or subcontractors have demobilized, the Respondents shall remobilize the contractors or subcontractors and perform the additional work. Except where it is inconsistent with this UAO, as determined by the EPA, the RI/FS guidance and other applicable sections of EPA guidance cited herein are Performance Standards.

III. ROLE OF THE EPA

12. The EPA's approval of deliverables, including, but not limited to, submissions, allows the Respondents to proceed to the next steps in implementing the Work of the RI/FS. The EPA's approval does not imply any warranty of performance, nor does it imply that the RI/FS, when completed, will function properly and be ultimately accepted by the EPA. The EPA retains the right to disapprove submissions during the RI/FS. The EPA may disapprove deliverables including, but not limited to, submissions concerning such matters as the contractor selection, plans and specifications, work plans, processes, sampling, analysis and any other deliverables within the context of the UAO. If a submission is unacceptable to the EPA, the EPA may require the Respondents to make modifications in the submission, and the EPA may require the Respondents to do additional work to support those modifications. That is, if a submission reports certain work that is unacceptable to the EPA, the EPA may

require the Respondents to modify the submission text and to perform the work until it is acceptable to the EPA. The Respondents shall modify the submission and perform the work as required by the EPA.

IV. RESPONDENTS' KEY PERSONNEL

Respondent's Project Coordinator

13. When necessary, as determined by the EPA, the EPA will meet with the Respondents and discuss the performance and capabilities of the Respondent's Project Coordinator. When the Project Coordinator's performance is not satisfactory, as determined by the EPA, the Respondents shall take action, as requested by the EPA, to correct the deficiency. If, at any time, the EPA determines that the Project Coordinator is unacceptable for any reason, the Respondents, at the EPA's request, shall bar the Project Coordinator from any work under the UAO and give notice of the Respondent's selected new Project Coordinator to the EPA.

Respondent's Quality Assurance Manager

14. Oversight, including, but not limited to confirmation sampling, by the Respondent's Quality Assurance Manager (QA Manager) will be used to provide confirmation and assurance to the Respondents and to the EPA that the Respondents are performing the RI/FS in a manner that will meet the Performance Standards. The QA Manager shall ensure that the work performed by the Respondents meets the standards in the Quality Assurance Project Plan described in this SOW. The QA Manager shall selectively test and inspect the work performed by the Respondents.

V. TASKS TO BE PERFORMED AND DELIVERABLES

Conduct of the Remedial Investigation and Feasibility Study

15. This SOW specifies the Work to be performed and the deliverables which shall be produced by the Respondents. The Respondents shall conduct the RI/FS in accordance with this SOW and all applicable guidance that the EPA uses in conducting RI/FS projects under CERCLA, as amended by SARA, as well as any additional requirements in the UAO. The Respondents shall furnish all necessary personnel, materials, and services necessary for, and incidental to, performance of the RI/FS, except as otherwise specified in the UAO or SOW.

Submittal of Deliverables

16. All draft and final deliverables specified in this SOW shall be provided in hard copy, by the Respondents, to the EPA (one copy), EPA's RI/FS Oversight Contractor (one copy), Louisiana Department of Environmental Quality (LDEQ, two copies), and the Federal/State Natural Resource Trustees¹ (one copy each). Draft and final deliverables shall be provided in electronic format (specifically, Microsoft ® Word and Adobe® PDF format (only final deliverables)) to the EPA, EPA's

¹The Federal/State Natural Resource Trustees for the Site have been identified as the U.S. Department of Interior, U.S. Fish and Wildlife Service, United States Geological Survey, Louisiana Department of Environmental Quality, Louisiana Department of Natural Resources Commission, Louisiana Coastal Protection and Restoration Authority, Louisiana Oil Spill Coordinator's Office, and the Louisiana Department of Wildlife and Fisheries Commission.

RI/FS Oversight Contractor, LDEQ, and the Federal/State Natural Resource Trustees. Final deliverables shall be provided in hard copy and electronic format (specifically, Adobe® PDF format) to the Information Repository established for the Site. The EPA shall be responsible for placing the required deliverables into the Information Repository. The Respondents shall provide the EPA with any other documentation for the Information Repository as requested by the EPA's Remedial Project Manager. Additionally, all deliverables specified in this SOW shall be submitted, by the Respondents, according to the requirements of this SOW and Appendix A of this SOW (Schedule of Deliverables/Meetings). In addition to the Deliverables identified in Appendix A, Respondents shall provide to EPA an updated database with the bi-monthly status report for reporting periods in which validated data have been uploaded to the database.

Development of Deliverables

17. All deliverables shall be developed in accordance with the guidance documents listed in Appendix B² (Guidance Documents) to this SOW. Subject to the provisions regarding EPA Approval of Plans and other Submissions in Section XII. of the UAO, if the EPA disapproves of or requires revisions to any of these deliverables, in whole or in part, the Respondents shall submit to the EPA, within thirty (30) days after completing discussion of EPA's directions or comments on the deliverable (and in no event later than forty-five (45) calendar days after receiving EPA's comments or directions on the deliverable), revised plans which are responsive to such directions or comments.

Tasks to be Performed by the Respondents

18. The Respondents shall perform each of the following Tasks (Tasks 1-10) as specified in this SOW. These Tasks shall be developed in accordance with the guidance documents listed in Appendix B² (Guidance Documents) to this SOW and any additional guidance applicable to the RI/FS process.

Task 1: Scoping

19. The purpose of Task 1 (Project Planning) is to determine how the RI/FS will be managed and controlled. The following activities shall be performed by the Respondents as part of Task 1.

- a) The Respondents shall contact the EPA's Remedial Project Manager within fourteen (14) calendar days after the effective date of the UAO to schedule a scoping phase meeting.
- b) The Respondents shall compile, review, and evaluate all existing Site data. The Respondents shall refer to Table 2-1 (Data Collection Information Sources) of the RI/FS Guidance for a list of data collection information sources. The Respondents shall exhaust, as necessary, all of those sources in compiling the data.

The Respondents shall compile all existing information describing hazardous substance sources, migration pathways, and potential human and environmental receptors. The Respondents shall compile all existing data relating to the varieties and quantities of hazardous substances released at or from the Site. The Respondents shall compile and review all available data relating to past

²Appendix B of this SOW does not include all guidance documents that are applicable to the RI/FS for the Site. The Respondents should consult with EPA's Remedial Project Manager for additional guidance and to ensure that the guidance documents have not been superseded by more recent guidance.

disposal practices of any kind on and near the Site. The Respondents shall compile existing data concerning the physical and chemical characteristics of the hazardous substances, and their distribution among the environmental media (ground water, soil, surface water, sediments, and air) on and near the Site.

The Respondents shall compile existing data which resulted from any previous sampling events that may have been conducted on and near the Site. The Respondents shall gather existing data which describes previous responses that have been conducted on and near the Site by local, state, federal, or private parties.

The Respondents shall gather existing information regarding geology, hydrogeology, hydrology (including floodplains), meteorology (including previous hurricane activity), and ecology of the Site. The Respondents shall gather existing data regarding background ground water, background soil, background surface water, background sediments, and background air characteristics (if necessary). The Respondents shall gather existing data regarding demographics, land use, property boundaries, and zoning. The Respondents shall gather existing data which identifies and locates residential, municipal, or industrial water wells on and near the Site. The Respondents shall gather existing data which identifies surface water uses for areas surrounding the Site including, but not limited to, downstream of the Site. The Respondents shall gather existing information describing the flora and fauna of the Site. The Respondents shall gather existing data regarding state and federally listed threatened, endangered, or rare species; sensitive environmental areas; or critical habitats on and near the Site. The Respondents shall compile any existing ecological assessment data. This may include, but is not limited to, results of acute or chronic toxicity tests using Site surface water and/or sediment, analysis of invertebrate and/or fish tissue concentrations, analysis of wildlife tissue and egg concentrations, and any wildlife or invertebrate census or community survey information.

The Respondents shall use data compiled and reviewed to describe additional data needed to characterize the Site, to better define potential ARARs, and to develop a range of preliminarily identified remedial alternatives. All previously collected data shall be reviewed to determine compliance with the data quality requirements for the project and that it is suitable for use in the RI/FS.

Task 2: Remedial Investigation and Feasibility Study Work Plan

20. The Respondents shall prepare and submit a Draft RI/FS Work Plan (WP) within forty-five (45) calendar days after the Scoping Phase Meeting. The Respondents shall use information from appropriate EPA guidance and technical direction provided by the EPA's Remedial Project Manager as the basis for preparing the Draft RI/FS WP. The RI/FS shall be conducted in a manner that minimizes environmental impacts in accordance with the EPA's Principles for Greener Cleanups (EPA 2009a.) and EPA Region 6 Clean and Green Policy (EPA 2009b.) to the extent consistent with the National Contingency Plan (NCP), 40 CFR Part 300. The Best Management Practices available at <http://www.cluin.org/greenremediation/> shall be considered.

21. The Respondents shall develop the Draft RI/FS WP in conjunction with the Draft RI/FS Sampling and Analysis Plan (Task 3 (RI/FS Sampling and Analysis Plan)) and the Draft RI/FS Site

Health and Safety Plan (Task 4 (RI/FS Site Health and Safety Plan)), although each plan may be submitted to the EPA under separate cover. The Draft RI/FS WP shall include a comprehensive description of the Work to be performed, the methodologies to be utilized, and a corresponding schedule for completion. In addition, the Draft RI/FS WP shall include the rationale for performing the required activities.

22. Specifically, the Draft RI/FS WP shall present a statement of the problem(s) and potential problem(s) posed by the Site and the objectives of the RI/FS. Furthermore, the Draft RI/FS WP shall include a Site background summary setting forth the Site description which includes the geographic location of the Site, and to the extent possible, a description of the Site's physiography, hydrology, geology, and demographics; the Site's ecological, cultural and natural resource features; a synopsis of the Site history and a description of previous responses that have been conducted at the Site by local, state, federal, or private parties; and a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the Site. In addition, the Draft RI/FS WP shall include a description of the Site management strategy developed during scoping, and a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives. The Draft RI/FS WP shall reflect coordination with treatability study requirements (Task 8 (Treatability Studies)) and will show a process for and manner of identifying Federal and State chemical-, location-, and action-specific ARARs.

23. Finally, the major part of the Draft RI/FS WP shall be a detailed description of the Tasks (Tasks 1-10) to be performed, information needed for each Task and for the Baseline Human Health and Ecological Risk Assessments, information to be produced during and at the conclusion of each Task, and a description of the Work products and deliverables that the Respondents will submit to the EPA. This includes the deliverables set forth in the remainder of this SOW; a schedule for each of the required activities which is consistent with the EPA's guidance documents; monthly reports to the EPA as specified in Appendix A (Schedule of Deliverables/Meetings); and meetings and presentations to the EPA at the conclusion of each major phase of the RI/FS. The Respondents shall refer to the EPA's guidance document entitled, "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA 1988b) which describes the RI/FS WP format and the required content.

24. The Respondents are responsible for fulfilling additional data and analysis needs identified by the EPA consistent with the general scope and objectives of this RI/FS. Because of the nature of the Site and the iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. If any significant additional Work is required to meet the objectives stated in the RI/FS WP, based upon new information obtained during the RI/FS, the Respondents shall submit a Draft RI/FS WP Amendment to the EPA for review and approval prior to any additional Work being conducted in accordance with the UAO and SOW. The EPA may, at its discretion, give verbal approval for Work to be conducted prior to providing written approval of the Draft RI/FS WP Amendment.

25. Subject to the provisions in Section XII. of the UAO, the Respondents shall prepare and submit to the EPA a final RI/FS Work Plan within thirty (30) calendar days after completing discussion of EPA's comments on the draft RI/FS Work Plan (and in no event later than forty-five (45) calendar days after receipt of the EPA's comments on the draft RI/FS Work Plan).

Task 3: RI/FS Sampling and Analysis Plan

26. The Respondents shall prepare and submit to the EPA a Draft RI/FS Sampling and Analysis Plan (SAP) within forty-five (45) calendar days after the Scoping Phase Meeting. This Draft RI/FS SAP shall provide a mechanism for planning field activities and shall consist of an RI/FS Field Sampling Plan and Quality Assurance Project Plan as follows:

a) The RI/FS Field Sampling Plan (FSP) shall define in detail the sampling and data gathering methods that will be used for the project to define the nature and extent of contamination and risk assessment-related studies (Task 7, Risk Assessments). It shall include, but not be limited to, sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The RI/FS FSP shall contain a completed Sample Design Collection Worksheet and a Method Selection Worksheet. These worksheet templates can be found in the EPA's guidance document entitled, "Guidance for Data Useability in Risk Assessment" (EPA 1992a). In addition, the FSP shall include a comprehensive description of the Site including geology; location; and physiographic, hydrological, ecological, cultural, and natural resource features; a brief synopsis of the history of the Site; summary of existing data; and information on fate and transport and effects of chemicals. As such, the Respondents shall provide a strategy that includes both biased sampling and random sampling. The risk assessments require that the sampling be conducted to demonstrate that data is statistically representative of the Site. The Respondents shall also confirm that the detection limits for all laboratories are in accordance within the goals stated in the EPA's risk assessment guidance.

The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. Existing data, if used for the RI/FS, shall meet the data quality and usability requirements based on the data quality objectives for the Site. The FSP shall be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. The Respondents shall refer to EPA's guidance document entitled, "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA 1988b) which describes the RI/FS FSP format and the required content. The Respondents shall document any required changes to the Final FSP, during the implementation of the RI/FS, in a memorandum to the EPA's Remedial Project Manager and after discussions with the EPA.

b) The RI/FS Quality Assurance Project Plan (QAPP) shall describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired Data Quality Objectives (DQOs). The DQOs shall at a minimum reflect use of analytical methods for identifying contamination and remediating contamination consistent with the levels for remedial action objectives identified in the NCP. In addition, the RI/FS QAPP shall address sampling procedures; sample custody; analytical procedures; data reduction, validation, and reporting; and personnel qualifications. The Respondents shall refer to the EPA's guidance documents entitled; "EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5" (EPA 2001, EPA/240/B-01/003, March 2001, or the latest revision), and "Guidance for Quality Assurance Project Plans, EPA QA/G-5" (EPA 2002, EPA/240/R-02/009, December 2002, or the latest revision) which describe the RI/FS QAPP

format and the required content.

Subject to the provisions in Section XII of the UAO, the Respondents shall prepare and submit to the EPA a final RI/FS SAP within thirty (30) calendar days after completing discussion of EPA's comments on the draft RI/FS SAP (and in no event later than forty-five (45) calendar days after receipt of the EPA's comments on the draft RI/FS SAP).

27. The Respondents shall demonstrate in advance, to the EPA's satisfaction, that each analytical laboratory it may use is qualified to conduct the proposed Work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and the DQOs approved in the RI/FS QAPP for the Site by the EPA. The laboratory must have, and follow, an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods shall be used where appropriate. Any methods not consistent with CLP methods shall be approved by the EPA prior to their use. Furthermore, if a laboratory not in the CLP program is selected, a laboratory QA program must be submitted to the EPA for review and approval. The EPA may require the Respondents to submit detailed information to demonstrate that the laboratory is qualified to conduct the Work, including information on personnel and qualifications, equipment, and material specifications.

Task 4: RI/FS Site Health and Safety Plan

28. The Respondents shall prepare and submit to the EPA an RI/FS Site Health and Safety Plan (HSP) within forty-five (45) calendar days after the Scoping Phase Meeting. This RI/FS HSP shall be prepared in accordance with the Occupational Safety and Health Administration regulations and protocols and must be in place prior to any onsite activities. The EPA will review, but not approve, the RI/FS Site HSP to ensure that all necessary elements are included and that the plan provides for the protection of human health and the environment. The EPA may, at its discretion, disapprove the Site HSP and provide comments concerning those aspects of the plan which pertain to the protection of the environment and the health of persons not employed by, or under contract to, the Respondents. In addition, EPA may require a revised RI/FS Site HSP to be submitted for review in the event that the RI/FS WP is changed or amended (e.g., such as in the performance of pilot studies which may result in the airborne emissions of hazardous substances from the Site). The Respondents shall refer to the EPA's guidance document entitled, "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA 1988b) which describes the RI/FS Site HSP format and the required content.

Task 5: Community Involvement Plan

29. The development and implementation of community relations activities, including community interviews and developing a community involvement plan, are the responsibilities of EPA. Respondents must assist, as required by EPA, by providing information regarding the Site's history, participating in public meetings upon notice from EPA, or by preparing fact sheets for distribution to the general public. As appropriate and feasible, EPA will provide Respondents with the opportunity to review and provide comments on a draft community involvement plan, including the stakeholder and community mailing lists, and fact sheets prior to distribution. In addition, EPA may require that Respondents establish a community information repository, at or near the Site, to house one copy of the administrative record. The extent of Respondents' involvement in community relations activities is left to the discretion of EPA. Respondents' community relations responsibilities, if any, are specified in the community involvement

plan. All community relations activities will be subject to oversight by EPA.

Task 6: Site Characterization

30. As part of the Remedial Investigation (RI), the Respondents shall perform the activities described in this Task, including the preparation of an RI Report (Task 9, Remedial Investigation Report). The overall objective of the Site's characterization will be to describe areas of the Site that may pose a threat to human health or the environment. This will be accomplished by first determining the Site's physiography, geology, and hydrology. Surface and subsurface pathways of migration shall be defined by the Respondents. The Respondents shall identify the sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents. The Respondents shall also investigate the extent of migration of this contamination as well as its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the Site. Using this information, contaminant fate and transport will then be determined and projected.

31. The Respondents shall implement the Final RI/FS WP, and SAP during this phase of the RI/FS. Field data will be collected and analyzed to provide the information required to accomplish the objectives of the study. The Respondents shall notify the EPA at least fifteen (15) calendar days in advance of the field work regarding the planned dates for field activities, including, but not limited to, ecological field surveys, field layout of the sampling grid, installation of wells, initiating sampling (air, surface water, ground water, sediments, soils, and biota), installation and calibration of equipment, aquifer tests, and initiation of analysis and other field investigation activities (including geophysical surveys and borehole geophysics). The Respondents shall not proceed with field activities without prior EPA approval. The Respondents shall demonstrate that the laboratory and type of laboratory analyses that will be utilized during the Site's characterization meets the specific QA/QC requirements and the DQOs established for the investigation of the Site as specified in the Final RI/FS SAP. Activities are often iterative, and to satisfy the objectives of the RI/FS it may be necessary for the Respondents to supplement the Work specified in the Final RI/FS WP.

32. The Respondents shall perform the following activities as part of Task 6 (Site Characterization):

a) Field Investigation - The field investigation shall include the gathering of data to define the Site's physical and biological characteristics, sources of contamination, and the nature and extent of contamination at or from the Site. These activities shall be performed by the Respondents in accordance with the Final RI/FS WP and SAP. At a minimum, this field investigation shall address the following:

i) Implementation and Documentation of Field Support Activities - The Respondents shall initiate field support activities following the Final RI/FS WP and SAP approved by the EPA. Field support activities may include obtaining access to the Site; scheduling; and procurement of equipment, office space, laboratory services, and/or contractors. The Respondents shall notify the EPA at least fifteen (15) calendar days prior to initiating field support activities so that the EPA may adequately schedule oversight activities. The Respondents shall also notify the EPA in writing upon completion of field support activities.

ii) Investigation and Definition of Site Physical and Biological Characteristics - The Respondents shall collect data on the physical and biological characteristics of the Site and its surrounding areas including the physiography, geology, hydrology, and specific physical characteristics identified in the Final RI/FS WP. This information shall be ascertained through a combination of physical measurements, observations, and sampling efforts, and will be utilized to define potential transport pathways and human and ecological receptor populations (including risks to endangered or threatened species). In defining the Site's physical characteristics, the Respondents shall also obtain sufficient engineering data for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

iii) Definition of Sources of Contamination - The Respondents shall locate each source of contamination. For each location, the areal extent and depth of contamination will be determined by sampling at incremental depths on a sampling grid. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. The Respondents shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the Final RI/FS QAPP and DQOs. Defining the source of contamination shall include analyzing the potential for contaminant release (e.g., long-term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

iv) Description of the Nature and Extent of Contamination - The Respondents shall gather information to describe the nature and extent of contamination, at or from the Site, as a final step during the field investigation. To describe the nature and extent of contamination, the Respondents shall utilize the information on the Site's physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The Respondents shall then implement an iterative monitoring program and any study program identified in the Final RI/FS WP or SAP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Site can be determined. In addition, the Respondents shall gather data for calculations of contaminant fate and transport. This process shall be continued until the area and depth of contamination are known to the level of contamination established in the Final RI/FS QAPP and DQOs. The EPA will use the information on the nature and extent of contamination to determine the level of risk presented by the Site and to help determine aspects of the appropriate remedial action alternatives to be evaluated.

b) Data Analyses - The Respondents shall analyze the data collected and develop or refine the Conceptual Site Model by presenting and analyzing data on source characteristics, the nature and extent of contamination, the transport pathways and fate of the contaminants present at the Site, and the effects on human health and the environment:

i) Evaluation of Site Characteristics: The Respondents shall analyze and evaluate the data

to describe the Site's physical and biological characteristics, contaminant source characteristics (as necessary to identify principal threat or low threat wastes, and estimate waste volumes for risk assessment evaluation and remedial alternatives evaluation purposes), nature and extent of contamination, and contaminant fate and transport. Results of the Site's physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as the mobility and persistence of the contaminants. Where modeling is appropriate, such models shall be identified by the Respondents to the EPA in a Technical Memorandum prior to their use. If EPA disapproves of or requires revisions to the technical memorandum, in whole or in part, subject to the provisions in Section XII of the UAO, Respondents shall amend and submit to EPA a revised technical memorandum on modeling which is responsive to directions and EPA's comments within thirty (30) calendar days after completing discussion of the EPA's comments on the draft technical memorandum (and in no event later than forty-five (45) calendar days after receipt of the EPA's comments on the draft memorandum).

All data and programming, including any proprietary programs, shall be made available to the EPA together with a sensitivity analysis. The RI data shall be presented in a format to facilitate the Respondent's preparation of the Baseline Human Health and Ecological Risk Assessments (Task 7, Risk Assessments). All data shall be archived in a database in such a format that would be accessible to investigators as needed.

The Respondents shall agree to discuss and then collect additional data for any data gaps identified by the EPA that are needed to complete the risk assessments. Also, this evaluation shall provide any information relevant to the Site's characteristics necessary for evaluation of the need for remedial action in the risk assessments and for the development and evaluation of remedial alternatives. Analyses of data collected for the Site's characterization shall meet the DQOs developed in the Final RI/FS QAPP and stated in the Final RI/FS SAP (or revised during the RI).

c) Data Management Procedures – The Respondents shall consistently document the quality and validity of field and laboratory data compiled during the RI as follows:

i) Documentation of Field Activities - Information gathered during the Site's characterization shall be consistently documented and adequately recorded by the Respondents in well maintained field logs and laboratory reports. The method(s) of documentation shall be specified in the Final RI/FS WP and/or the SAP. Field logs shall be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports shall document sample custody, analytical responsibility and results, adherence to prescribed protocols, nonconformity events, corrective measures, and data deficiencies.

ii) Sample Management and Tracking - The Respondents shall maintain field reports;

sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the risk assessments and the development and evaluation of remedial alternatives. Analytical results developed under the Final RI/FS WP shall not be included in any characterization reports of the Site unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, the Respondents shall establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

33. Reuse Assessment - If EPA, in its sole discretion, determines that a Reuse Assessment is necessary, Respondents will perform the Reuse Assessment in accordance with the SOW, RI/FS Work Plan and applicable guidance (EPA 2001c). The Reuse Assessment should provide sufficient information to develop realistic assumptions of the reasonably anticipated future land use for the Site.

Task 7: Risk Assessments

34. The Respondents shall perform a Baseline Human Health Risk Assessment, Screening Level Ecological Risk Assessment, and a Baseline Ecological Risk Assessment (if necessary) for the Site, which will be a part of the RI Report. The Respondents will prepare one section of the Final RI/FS WP (Task 2) which discusses the risk assessment process and outlines the steps necessary for coordinating with the EPA at key decision points within the process. Submittal of deliverables, meetings and/or conference calls, and presentations to the EPA will be reflected in the project schedule in the Final RI/FS WP to demonstrate the progress made on the risk assessments. The DQOs listed within the Final RI/FS QAPP will include DQOs specific to risk assessment needs, and critical samples needed for the risk assessments will be identified within the Final RI/FS SAP. The Respondents shall develop an initial Conceptual Site Model which may be revised as new information is obtained. These risk assessments shall consist of both Human Health and Ecological Risk Assessments as follows:

a) Baseline Human Health Risk Assessment: The Respondents shall perform a Baseline Human Health Risk Assessment (BHHRA) to evaluate and assess the risk to human health posed by the contaminants present at the Site. The Respondents shall refer to the appropriate EPA guidance documents (EPA 1989b, 1991a, 1991b, 1991c, 1992a, and 2001b) in conducting the BHHRA. The Respondents shall address the following in the BHHRA:

i) Hazard Identification (sources) - The Respondents shall review available information on the hazardous substances present at the Site and identify the major contaminants of concern.

ii) Dose-Response Assessment - The Respondents, with concurrence from the EPA, shall select contaminants of concern based on their intrinsic toxicological properties and distribution in the environment.

iii) Conceptual Exposure/Pathway Analysis - The Respondents shall identify and analyze critical exposure pathways (e.g., drinking water). The proximity of contaminants to exposure pathways and their potential to migrate into critical exposure pathways shall be assessed.

iv) Characterization of Site and Potential Receptors - The Respondents shall identify and

characterize human populations in the exposure pathways.

v) Exposure Assessment - During the exposure assessment, the Respondents shall identify the magnitude of actual or potential human exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels. In developing the exposure assessment, the Respondents shall develop reasonable maximum estimates of exposure for both current land use conditions and potential future land use conditions at the Site.

vi) Risk Characterization - During risk characterization, the Respondents shall compare chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether concentrations of contaminants at or near the Site are affecting or could potentially affect human health.

vii) Identification of Limitations/Uncertainties - The Respondents shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the BHHRA.

viii) Conceptual Site Model - Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, the Respondents shall develop a Conceptual Site Model for the Site.

The Respondents shall prepare and submit to the EPA for review and approval, according to the schedule specified in the Final RI/FS Work Plan, a Draft BHHRA. Subject to the provisions in Section X of the UAO, the Respondents shall submit a Final BHHRA within thirty (30) calendar days after completing discussion of the EPA's comments on the Draft BHHRA (an in no event later than forty-five (45) calendar days after receipt of the EPA's approval of the Draft BHHRA.

b) Baseline Ecological Risk Assessment: The Respondents shall perform the Baseline Ecological Risk Assessment (BERA) concurrently with the BHHRA. The BERA shall conform to current EPA guidance (EPA 1992a, EPA 1992b, EPA 1993, EPA 1997, and EPA 2001b). The scoping of all phases of the BERA shall follow the general approach provided in the EPA's guidance (EPA 1997) and shall include discussions between the Respondents and the EPA's risk assessors and risk managers. The BERA shall conform to the general outline provided in the EPA's guidance (EPA 1997).

The eight steps in the Baseline Ecological Risk Assessment (BERA) process include:
Step 1 - Screening-Level Problem Formulation and Ecological Effects Evaluation,
Step 2 - Screening-Level Preliminary Exposure Estimate and Risk Calculation,
Step 3 - Baseline Risk Assessment Problem Formulation,
Step 4 - Study Design and Data Quality Objectives,

Step 5 - Field Verification and Sampling Design,
Step 6 - Site Investigation and Analysis of Exposure and Effects,
Step 7 - Risk Characterization, and
Step 8 - Risk Management.

The Respondents shall interact closely with the EPA's Remedial Project Manager and risk assessment staff assigned to the Site to ensure that draft deliverables are acceptable and major rework is avoided on subsequent submittals. The scope of the BERA will be determined via a phased approach as outlined in the EPA's guidance documents and documented in the following deliverables:

i) Step 1, Screening Level Problem Formulation and Ecological Effects Evaluation - The "Screening Level Problem Formulation and Ecological Effects Evaluation" step is part of the initial ecological risk screening assessment. For this initial step, it is likely that site-specific information for determining the nature and extent of contamination and for characterizing ecological receptors at the Site is limited. This step includes all the functions of problem formulation (Steps 3 and 4) and ecological effects analysis, but on a screening level. The results of this step will be used in conjunction with exposure estimates during the preliminary risk calculation in Step 2 (Screening-Level Preliminary Exposure Estimate and Risk Calculation).

For the screening level problem formulation, the Respondents shall develop a Conceptual Site Model that addresses these five issues: 1) environmental setting and contaminants known or suspected to exist at the Site, 2) contaminant fate and transport mechanisms that might exist at the Site, 3) the mechanisms of ecotoxicity associated with contaminants and likely categories of receptors that could be affected, 4) the complete exposure pathways that might exist at the Site, and 5) selection of endpoints to screen for ecological risk.

The next step in the initial ecological risk screening assessment will be the preliminary ecological effects evaluation and the establishment of contaminant exposure levels that represent conservative thresholds for adverse ecological effects. Screening ecotoxicity values shall represent a no-observed-adverse-effect-level for long-term exposures to a contaminant. Ecological effects of most concern are those that can impact populations (or higher levels of biological organizations), and/or individual receptors for state and federally listed threatened/endangered or rare species; and include adverse effects on development, reproduction, and survivorship. For some of the data reported in the literature, conversions may be necessary to allow the data to be used for measures of exposure other than those reported. The Respondents shall consult with the EPA's Remedial Project Manager and risk assessors concerning any extrapolations used in developing screening ecotoxicity values.

ii) Step 2, Screening-Level Exposure Estimate and Risk Calculation - The "Screening-Level Exposure Estimate and Risk Calculation" comprises the second step in the ecological risk screening assessment for the Site. Risk is estimated by comparing

maximum documented exposure concentrations with the ecotoxicity screening values from Step 1. At the conclusion of Step 2, the Respondents shall decide, with concurrence from the EPA, that either the screening-level ecological risk assessment is adequate to determine that ecological threats are negligible, or the process should continue to a more detailed ecological risk assessment (Steps 3 through 7). If the process continues, the screening-level assessment serves to identify exposure pathways and preliminary contaminants of concern for the BERA by eliminating those contaminants and exposure pathways that pose negligible risks.

To estimate exposures for the screening-level ecological risk calculation, on-site contaminant levels and general information on the types of biological receptors that might be exposed should be known from Step 1. Only complete exposure pathways should be evaluated and the highest measured or estimated on-site contaminant concentration for each environmental medium should be used to estimate exposures, thereby ensuring that potential ecological threats are not missed.

The Respondents will estimate a quantitative screening-level risk using the exposure estimates developed according to Step 2 and the screening ecotoxicity values developed according to Step 1. For the screening-level risk calculation, the hazard quotient approach, which compares point estimates of screening ecotoxicity values and exposure values, is adequate to estimate risk.

At the end of Step 2, the Respondents shall decide, with concurrence from the EPA, whether the information available is adequate to support a risk management decision. The three possible decisions at this point will be: 1) There is adequate information to conclude that ecological risks are negligible and therefore no need for remediation on the basis of ecological risk; 2) The information is not adequate to make a decision at this point, and the ecological risk assessment process will continue to Step 3; or 3) The information indicates a potential for adverse ecological effects, and a more thorough assessment is warranted. The Respondents shall document the decision and the basis for it in a Draft Screening Level Ecological Risk Assessment (SLERA) Report and submit it to the EPA for review and approval according to the project schedule in the Final RI/FS WP. The Respondents shall submit a Final SLERA within thirty (30) days after completing discussion of the EPA's comments on the Draft SLERA Report (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft SLERA Report).

iii) Step 3, Baseline Risk Assessment Problem Formulation - The "Baseline Risk Assessment Problem Formulation" step of the BERA will refine the screening-level problem formulation and expands on the ecological issues that are of concern at the Site. In the screening-level assessment, conservative assumptions are used where site-specific information is lacking. In Step 3, the results of the screening assessment and additional site-specific information are used to determine the scope and goals of the BERA. Steps 3 through 7 will be required only if the screening-level assessment, in Steps 1 and 2, indicated a need for further ecological risk evaluation.

Problem formulation at Step 3 will include the following activities: a) refining preliminary contaminants of ecological concern; b) further characterizing ecological effects of contaminants; c) reviewing and refining information on contaminant fate and transport, complete exposure pathways, and ecosystems potentially at risk; d) selecting assessment endpoints; and e) developing a CSM with working hypotheses or questions that the Site investigation will address.

At the conclusion of Step 3, the Respondents shall submit a Draft BERA Problem Formulation (PF) Report to the EPA for review and approval according to the project schedule in the Final RI/FS Work Plan. The Respondents shall submit a Final BERA PF Report within thirty (30) days after completing discussion of the EPA's comments on the Draft BERA PF Report (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft BERA PF Report). This report shall discuss the assessment endpoints, exposure pathways, risk questions, and the CSM integrating these components. The products of Step 3 will be used to select measurement endpoints and to develop the BERA Work Plan (WP) and Sampling and Analysis (SAP) for the Site in Step 4.

iv) Step 4, Study Design and Data Quality Objective Process - The "Study Design and Data Quality Objective Process" step of the BERA will establish the measurement endpoints which complete the CSM in Step 3. The CSM will then be used to develop the study design and DQOs. The deliverables of Step 4 will be the BERA WP and SAP, which describe the details of the Site's investigation as well as the data analysis methods and DQOs. The Draft BERA WP shall describe the assessment endpoints, exposure pathways, questions and testable hypotheses, measurement endpoints and their relation to assessment endpoints, and uncertainties and assumptions. The Draft BERA SAP shall describe data needs; scientifically valid and sufficient study design and data analysis procedures; study methodology and protocols, including sampling techniques; data reduction and interpretation techniques, including statistical analyses; and quality assurance procedures and quality control techniques. The Respondents shall submit to the EPA for review and approval a Draft BERA WP and SAP according to the schedule specified in the Final RI/FS Work Plan. The Respondents shall submit a Final BERA WP and SAP within thirty (30) days after completing discussion of the EPA's comments on the Draft BERA WP and SAP (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft BERA WP and SAP).

v) Step 5, Field Verification of Sampling Design - The "Field Verification of Sampling Design" step of the BERA process will ensure that the DQOs for the Site can be met. This step verifies that the selected assessment endpoints, testable hypotheses, exposure pathway model, measurement endpoints, and study design from Steps 3 and 4 are appropriate and implementable at the Site. Step 6 of the BERA process cannot begin until the Final BERA WP and SAP are approved by the EPA.

vi) Step 6, Site Investigation and Analysis Phase - The "Site Investigation and Analysis

Phase” of the BERA process shall follow the Final BERA WP and SAP developed in Step 4 and verified in Step 5. The Step 6 results are then used to characterize ecological risks in Step 7.

The Final BERA WP for the Site investigation will be based on the CSM and will specify the assessment endpoints, risk questions, and testable hypotheses. During the Site investigation, the Respondents shall adhere to the DQOs and to any requirements for co-located sampling. The analysis phase of the BERA process will consist of the technical evaluation of data on existing and potential exposures and ecological effects at the Site. This analysis will be based on the information collected during Steps 1 through 5 and will include additional assumptions or models to interpret the data in the context of the CSM. Changing field conditions and new information on the nature and extent of contamination may require a change to the Final BERA SAP.

vii) Step 7 - Risk Characterization - The “Risk Characterization” step is considered the final phase of the BERA process and will include two major components: risk estimation and risk description. Risk estimation will consist of integrating the exposure profiles with the exposure-effects information and summarizing the associated uncertainties. The risk description will provide information important for interpreting the risk results and will identify a threshold for adverse effects on the assessment endpoints. At the end of Step 7, the Respondents shall submit a Draft BERA Report to EPA for review and approval according to the project schedule in the Final RI/FS WP. The Respondents shall submit a Final BERA Report within thirty (30) days after completing discussion of the EPA’s comments on the Draft BERA Report (and in no event later than forty-five (45) days after receipt of the EPA’s comments on the Draft BERA Report).

viii) Step 8 - Risk Management - “Risk Management” at the Site will be the responsibility of the EPA’s Remedial Project Manager and risk assessor(s), who must balance risk reductions associated with cleanup of contaminants with potential impacts of the remedial actions themselves. In Step 7, a threshold for effects on the assessment endpoint as a range between contamination levels identified as posing no ecological risk and the lowest contamination levels identified as likely to produce adverse ecological effects will be identified. In Step 8, the EPA’s Remedial Project Manager and risk assessor(s) will evaluate several factors in deciding whether or not to clean up to within that range. This risk management decision will be finalized by the EPA in the Record of Decision for the Site.

Task 8: Treatability Studies

35. Treatability testing, if necessary, shall be performed by the Respondents to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and operating conditions shall be used in the detailed design of the selected remedial technology. The following activities shall be performed by the Respondents:

- a) Determination of Candidate Technologies and of the Need for Testing - The Respondents shall identify candidate technologies for a treatability studies program.

The listing of candidate technologies will cover the range of technologies required for alternatives analysis. The specific data requirements for the testing program will be determined and refined during the characterization of the Site and the development and screening of remedial alternatives. The Respondents shall perform the following activities:

- i) Conduct of Literature Survey and Determination of the Need for Treatability Testing - The Respondents shall conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance requirements, and implementability of candidate technologies. If practical technologies have not been sufficiently demonstrated, or cannot be adequately evaluated for this Site on the basis of available information, treatability testing may need to be conducted. Where it is determined by the EPA that treatability testing is required, and unless the Respondents can demonstrate to the EPA's satisfaction that they are not needed, the Respondents shall be required to submit a Treatability Study Work Plan to the EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.
- ii) Evaluation of Treatability Studies - Once a decision has been made to perform treatability studies, the Respondents and the EPA will decide on the type of treatability testing to use (e.g., bench versus pilot, etc.). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing shall be made as early in the process as possible to minimize potential delays of the Feasibility Study (Task 10). If the EPA determines that treatability studies are necessary, the Respondents shall submit a Draft Treatability Study Work Plan (TSWP), Sampling and Analysis Plan (SAP), and Health and Safety Plan within forty-five (45) calendar days after the determination that treatability studies are necessary. Subject to the provisions in Section X of the UAO, the Respondents shall submit a Final TSWP, SAP, and HSP within thirty (30) days after completing discussion of the EPA's comments on the Draft TSWP (and in no event later than forty-five (45) calendar days after receipt of the EPA's comments on the Draft TSWP). The EPA will not approve the TS HSP but may provide comments to the Respondents.

The Respondents shall submit a Draft Treatability Study (TS) Report to the EPA for review and approval according to the project schedule in the Final Treatability Study Work Plan. Subject to the provisions in Section X of the UAO, the Respondents shall submit a Final TS Report within thirty (30) calendar days after completing discussion of the EPA's comments on the Draft TS Report (and in no event later than forty-five (45) calendar days after receipt of the EPA's comments of the Draft TS Report). This report shall evaluate the technology's effectiveness and implementability in relation to the Preliminary Remediation Goals established for the Site. Actual results must be compared with predicted results to justify effectiveness and implementability discussions.

36. The Respondents shall prepare and submit a Remedial Investigation (RI) Report. The Respondents shall refer to the EPA's guidance document entitled, "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA 1988b), including Table 3-13 (Suggested RI Report Format), for the RI Report format and the required content. The Respondents shall discuss the RI Report format and the required content with the EPA's Remedial Project Manager early in the RI/FS process. The information shall include a summary of the results of the field activities to characterize the Site, classification of ground water beneath the Site, nature and extent of contamination for all media, and appropriate site-specific discussions for fate and transport of contaminants. The Respondents shall incorporate the results of Task 7 (Risk Assessments) into the RI Report, as appropriate.

The Respondents shall submit a Draft RI Report to the EPA for review and approval according to the project schedule in the Final RI/FS Work Plan. Subject to the provisions in Section XII of the UAO, the Respondents shall submit a final RI Report within thirty (30) calendar days after completing discussion of the EPA's comments on the Draft RI Report (and in no event later than forty-five (45) calendar days after receipt of the EPA's comments on the Draft RI Report).

Task 10: Feasibility Study

37. The Respondents shall perform a Feasibility Study (FS) as specified in this SOW. The FS shall include, but not be limited to, the development and screening of alternatives for remedial action, a detailed analysis of alternatives for remedial action, and submittal of Draft and Final FS Reports as follows:

- a) Development and Screening of Alternatives for Remedial Action - The Respondents shall develop an appropriate range of remedial alternatives that will be evaluated through development and screening.
- b) Detailed Analyses of Alternatives for Remedial Action - The Respondents shall conduct a detailed analysis of remedial alternatives for the candidate remedies identified during the screening process described in this Task. This detailed analysis shall follow the EPA's guidance document entitled, "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA 1988b) and other appropriate guidance documents. The major components of the Detailed Analysis of Alternatives for Remedial Action shall consist of an analysis of each option against a set of evaluation criteria and a separate discussion for the comparative analysis of all options with respect to each other in a manner consistent with the NCP. The Respondents shall not consider state and community acceptance during the Detailed Analysis of Alternatives. The EPA will perform the analysis of these two criteria. At the conclusion of the Detailed Analysis of Alternatives and within the time frame specified in the project schedule in the Final RI/FS WP, the Respondents shall provide the EPA with a Draft FS Report as outlined below.

Draft Feasibility Study Report - The Respondents shall submit to the EPA, for review and approval, a Draft FS Report which documents the activities conducted during the Development and Screening of Alternatives and the Detailed Analyses of Alternatives, as described above, according to the project schedule in the Final RI/FS WP. The Respondents shall refer to the

EPA's guidance document entitled, "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA 1988b), specifically Table 6-5 (Suggested FS Report Format) for FS Report content and format.

c) Final Feasibility Study Report -- The Draft FS Report shall provide the basis for the Proposed Plan developed by the EPA under CERCLA and shall document the development and analysis of remedial alternatives. The Draft FS Report may be subject to change following comments received during the public comment period on the EPA's Proposed Plan. The EPA will forward any comments pertinent to content of the Draft FS Report to the Respondents. Subject to the provisions in Section XII of the UAO, the Respondents shall submit a Final FS Report within thirty (30) calendar days after completing discussion of the EPA's comments (and any public comments provided by EPA) on the Draft FS Report (and in no event later than forty-five (45) calendar days after the receipt of comments from EPA on the Draft FS Report).

APPENDIX A
SCHEDULE OF DELIVERABLES/MEETINGS
STATEMENT OF WORK
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
DELTA SHIPYARD SUPERFUND SITE

| DELIVERABLE | DUE DATE (CALENDAR DAYS) |
|---|--|
| 1. Scoping Phase Meeting | Meeting to be scheduled within fourteen (14) days after the effective date of the UAO. |
| 2. Draft and Final RI/FS Work Plan (WP) | Draft due within forty-five (45) days after the Scoping Phase Meeting. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft RI/FS Work Plan (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft RI/FS Work Plan) |
| 3. Draft and Final RI/FS Sampling and Analysis Plan (SAP) | Draft due within forty-five (45) days after the Scoping Phase Meeting. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft RI/FS SAP (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft RI/FS Work SAP) |
| 4. RI/FS Site Health and Safety Plan | Plan due within forty-five (45) days after the Scoping Phase Meeting. |
| 5. Draft and Final Technical Memorandum on Modeling of Site Characteristics | Draft due when Respondents propose that modeling is appropriate. Final due within thirty (30) days after completing discussion of the EPA's comments on the draft memorandum (and in no event later than forty-five (45) days after receipt of the EPA's comments on the draft memorandum). |
| 6. Draft and Final Baseline Human Health Risk Assessment (BHHRA) | Draft due as specified in the Final RI/FS WP. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft BHHRA (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft BHHRA). |
| 7. Draft and Final Screening Level Ecological Risk Assessment (SLERA) Report | Draft due as specified in the Final RI/FS WP. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft SLERA Report (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft SLERA Report). |
| 8. Draft and Final Baseline Ecological Risk Assessment (BERA) Problem Formulation (PF) Report | Draft due as specified in the Final RI/FS WP. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft BERA PF Report (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft BERA PF Report). |

APPENDIX A (CONTD.)
SCHEDULE OF DELIVERABLES/MEETINGS
STATEMENT OF WORK
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
DELTA SHIPYARD SUPERFUND SITE

| DELIVERABLES/MEETINGS | DUE DATES (CALENDAR DAYS) |
|--|--|
| 9. Draft and Final Baseline Ecological Risk Assessment (BERA) Work Plan (WP) and Sampling and Analysis Plan (SAP) | Draft due as specified in the Final RI/FS WP. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft BERA WP and SAP (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft BERA WP and SAP). |
| 10. Draft and Final Baseline Ecological Risk Assessment (BERA) Report | Draft due as specified in the Final RI/FS WP. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft BERA Report (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft BERA Report). |
| 11. Draft and Final Treatability Study (TS) Work Plan (WP), Sampling and Analysis Plan (SAP), and Health and Safety Plan | Draft due within forty-five (45) calendar days after the determination that treatability studies are necessary. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft TSWP (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft TSWP). |
| 12. Draft and Final Treatability Study (TS) Report | Draft due as specified in the Final RI/FS WP. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft TS Report (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft TS Report). |
| 13. Draft and Final Remedial Investigation (RI) Report | Draft due as specified in the Final RI/FS WP. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft RI Report (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft RI Report). |
| 14. Draft and Final Feasibility Study (FS) Report | Draft due as specified in the Final RI/FS WP. Final due within thirty (30) days after completing discussion of the EPA's comments on the Draft FS Report (and in no event later than forty-five (45) days after receipt of the EPA's comments on the Draft FS Report). |

APPENDIX B
GUIDANCE DOCUMENTS
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
DELTA SHIPYARD SUPERFUND SITE

The following list comprises some of the guidance documents that are applicable to the Remedial Investigation and Feasibility Study process. The Respondents should consult with EPA's Remedial Project Manager for additional guidance and to ensure that the following guidance documents have not been superseded by more recent guidance:

U.S. Environmental Protection Agency (EPA) 1987a. "Data Quality Objectives for Remedial Response Activities." Office of Emergency and Remedial Response and Office of Waste Programs Enforcement. EPA/540/G-87/003. OSWER Directive No. 9335.0-7b. March 1987.

EPA 1987b. "Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements." Office of Emergency and Remedial Response. OSWER Directive No. 9234.0-05. July 9, 1987.

EPA 1988a. "CERCLA Compliance with Other Laws Manual." Office of Emergency and Remedial Response. OSWER Directive No. 9234.1-01. August 1988.

EPA 1988b. "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA." Office of Emergency and Remedial Response. EPA/540/G-89/004. OSWER Directive No. 9355.3-01. October 1988.

EPA 1989a. "CERCLA Compliance with Other Laws Manual: Part II. Clean Air Act and Other Environmental Statutes and State Requirements." Office of Emergency and Remedial Response. OSWER Directive No. 9234.1-02. August 1989.

EPA 1989b. "Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)." Office of Emergency and Remedial Response. EPA/540/1-89/002. OSWER Directive No. 9285.7-01A. December 1989.

EPA 1991a. "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors." Office of Emergency and Remedial Response. OSWER Directive No. 9235.6-03. March 1991.

EPA 1991b. "Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part B), Development of Risk-Based Preliminary Remediating Goals." Office of Emergency and Remedial Response. OSWER Directive No. 9285.7-01B. December 1991.

EPA 1991c. "Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part C), Risk Evaluation of Remedial Alternatives." Office of Emergency and Remedial Response. OSWER Directive No. 9285.7-01C. 1991.

EPA 1992a. "Guidance for Data Useability in Risk Assessment." Office of Emergency and Remedial

Response. OSWER Directive No. 9285.7-09A. April 1992 (and Memorandum from Henry L. Longest dated June 2, 1992).

EPA 1992b. "Supplemental Guidance to RAGS: Calculating the Concentration Term." Office of Emergency and Remedial Response. OSWER Directive No. 9285.7-081. May 1992.

EPA 1997. "Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments." Office of Emergency and Remedial Response. EPA/540-R-97-006. June 5, 1997.

EPA 2000. "Guidance for the Data Quality Objectives Process." EPA QA/G-4, EPA/600/R-96/055. August 2000.

EPA 2001a. "EPA Requirements for Quality Assurance Project Plans." Office of Environmental Information. EPA QA/R-5. EPA/240/B-01/003. March 2001.

EPA 2001b. "Risk Assessment Guidance for Superfund, Volume 1 - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments). Final. Publication 9285.7-47. December 2001.

EPA 2001c. "Reuse Assessments: A Tool to Implement The Superfund Land Use Directive." OSWER 9355.7-06P", June 2001 available at

EPA 2002. "EPA Guidance for Quality Assurance Project Plans." EPA QA/G-5. EPA/240/R-02/009. December 2002.

EPA 2009a. "U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response Principles for Greener Cleanups" August 2009 available at
http://www.epa.gov/oswer/greenercleanups/pdfs/oswer_greencleanup_principles.pdf

EPA 2009b. "EPA Region 6 Clean and Green Policy" September 2009 available at
<http://www.cluin.org/greenremediation/docs/R6GRPolicy.pdf>

APPENDIX C
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
DELTA SHIPYARD SUPERFUND SITE

A preliminary list of probable Applicable or Relevant and Appropriate Requirements (ARARs) will be generated by the Respondents during the Remedial Investigation and Feasibility Study process. This list will be compiled according to established EPA guidance, research of existing regulations, and collection of site-specific information and data. Three types of ARARs will be identified:

- 1) Chemical-Specific ARARs: These ARARs are usually health- or risk-based numerical values or methodologies used to determine acceptable concentrations of chemicals that may be found in or discharged to the environment (e.g., maximum contaminant levels that establish safe levels in drinking water).
- 2) Location-Specific ARARs: These ARARs restrict actions or contaminant concentrations in certain environmentally sensitive areas. Examples of areas regulated under various Federal laws include floodplains, wetlands, and locations where endangered species or historically significant cultural resources are present.
- 3) Action-Specific ARARs: These ARARs are usually technology- or activity-based requirements or limitations on actions or conditions involving specific substances.

Chemical- and location-specific ARARs are identified early in the process, generally during the site investigation, while action-specific ARARs are usually identified during the Feasibility Study in the detailed analysis of alternatives.